ECHNOLOGY DEPT.

FLIGHT

MAGAZINE

OCTOBER 1954
35 cents

V42 #4

AERO COMMANDER 560

"Triple Threat"

Chance Vought Aircraft's potent F7U-3 Cutlasses, now entering squadron service with the U. S. Navy, are an outstanding example of versatility and striking power in modern carrier-based jet aircraft. Using a wide variety of armament, Cutlasses are designed to fly and fight as interceptors, fighters or attack planes.

Chance Vought Aircraft INCORPORATED

DALLAS, TEXAS

Convair...first choice all over the world!

Thirty airlines have chosen CONVAIR fleets for *your* air travel comfort and speed. Ask your favorite airline or travel agent to make *your* next flight a Convair... world's most popular passenger plane!

GLOBE, COURTESY ROBERT ANSTEAD JEWELER, LOS ANGELES

More airlines have chosen Convair than any other modern passenger plane, and as a transport-trainer for the U.S. Air Force, the Convair is setting new records for versatility and performance... another evidence of Convair's ENGINEERING TO THE N*th* POWER

SAN DIEGO & POMONA, CALIFORNIA
FORT WORTH & DAINGERFIELD, TEXAS

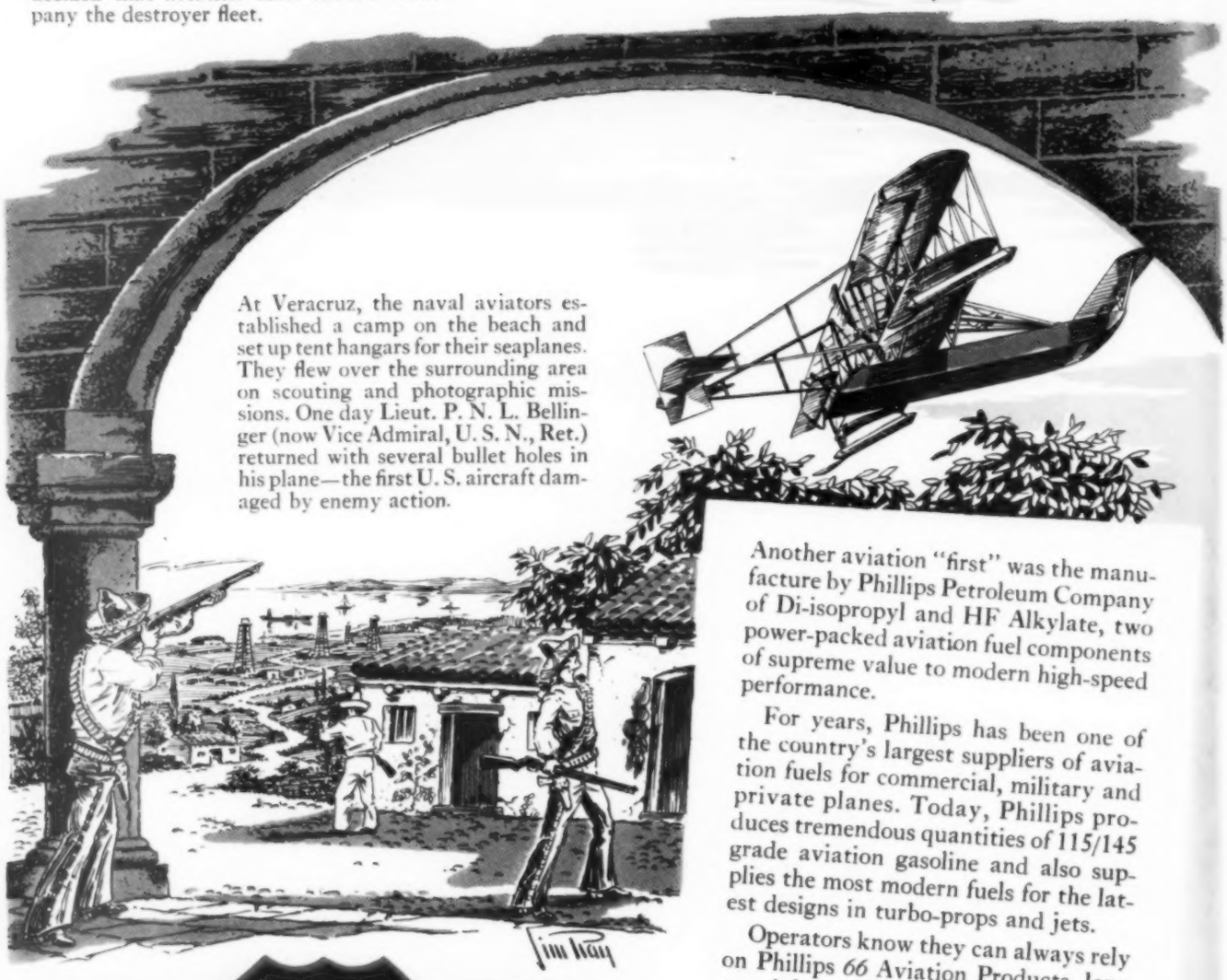
CONVAIR

Phillips 66
PRESENTS

MILESTONES IN AVIATION

The "Eyes of the Fleet" Go into Action

Very early, U. S. Navy airplanes demonstrated their ability to serve as "The Eyes of the Fleet." In 1914, revolutionary outbursts in Mexico caused President Wilson to dispatch naval vessels to Mexican ports. At the urging of enthusiastic naval aviators, it was decided that aviation units should accompany the destroyer fleet.



At Veracruz, the naval aviators established a camp on the beach and set up tent hangars for their seaplanes. They flew over the surrounding area on scouting and photographic missions. One day Lieut. P. N. L. Bellinger (now Vice Admiral, U. S. N., Ret.) returned with several bullet holes in his plane—the first U. S. aircraft damaged by enemy action.

Another aviation "first" was the manufacture by Phillips Petroleum Company of Di-isopropyl and HF Alkylate, two power-packed aviation fuel components of supreme value to modern high-speed performance.

For years, Phillips has been one of the country's largest suppliers of aviation fuels for commercial, military and private planes. Today, Phillips produces tremendous quantities of 115/145 grade aviation gasoline and also supplies the most modern fuels for the latest designs in turbo-props and jets.

Operators know they can always rely on Phillips *66* Aviation Products, long noted for quality and efficiency.

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips 66

AVIATION PRODUCTS

AIR Report
Significant Trends and News

DOUGLAS AIRCRAFT HAS A TRANSPORT HELICOPTER design for 40 passengers or more and powered by two turbine engines rated at 5,000 hp. each for a 250-mph. cruising speed. Design uses two rotors, one near each wing tip, with pusher propeller in the tail. Power is shafted for single-engine operation if one turbine becomes inoperative. For cruising, wing rotors would be unloaded while pusher propeller provides forward thrust. Price would be in neighborhood of $800,000.

FIRST 1955 LIGHTPLANE ANNOUNCEMENT has been made in an ad by Riley Aircraft Sales of Dallas, revealing that Temco is going into production with a new Riley Twin 55 having more powerful 4-cylinder engines than the 150-hp. Lycomings now used. Details are not divulged but new version is said to have shorter takeoff, higher rate of climb and cruising speed, higher single-engine ceiling, greater payload, new seating and new outside baggage door. Sixty-six Riley Twins have been sold to date.

VEST AIRCRAFT OF DENVER HAS ACQUIRED ERCOUPE MANUFACTURING RIGHTS for production of parts from Sanders Aviation of Riverdale, Maryland. Vest recently acquired manufacturing rights to the Temco Swift.

NEW TWIN-ENGINE, 5-PLACE AMPHIBIAN, the Italian Piaggio Royal Gull, is now offered on the American business plane market by Royal Aircraft Corp., a subsidiary of Kearney & Trecker Corp., Milwaukee. The Royal Gull is powered by two pusher Lycomings rated at 260 hp. each and driving Hartzell constant-speed, full-feathering propellers. Cruising speed is about 160 mph. at 7,000 ft. and 72 per cent of power. Fuel capacity of 190 gals. gives the Gull an endurance of more than 7 hrs. plus reserve. Service ceiling is 18,000 ft. with single-engine ceiling of more than 5,000 ft. The Royal Gull has a 5,840-lb. gross weight and a 3,900-lb. empty weight for a 1,940-lb. useful load, according to the distributor. Span is 44 ft. 5 ins., length 35 ft. 6 ins., and height 11 ft. 6 ins.

AT-6 TRAINERS IN STORAGE FOR 10 YEARS are being overhauled by Aerodex, Inc., of Miami, Florida, for the Dominican Republic. They were recently brought to Miami from South Rhodesia where they had been stored.

(Continued on page 42)

MORE POWERFUL, SUPERCHARGED CESSNA BIRD DOG is the new Marine Corps OE-2. With a supercharged 265-hp. Continental engine, it has 180-mph. top speed.
—(Cessna Photo.)

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

OCTOBER, 1954 VOL. 42, No. 4

COVER: An interesting portrait of a swept-tail Aero Commander 560 with one of its new 3-bladed Hartzell propellers feathered.
—(Aero Design & Engineering Photo.)

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. BOX 750 (1901 McKinney Ave.), Dallas, Texas—Telephone STerling 2125.

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—powered by new
ALLISON TURBO-JET ENGINES

The nation's newest reconnaissance bomber is the swift and versatile, twin-jet RB-66 – built for the Air Force by Douglas Aircraft Company, Inc. at Long Beach, California.

In the 600-700 MPH class, the RB-66 is powered by the new Allison J71 Turbo-Jet engine. This new power plant produces more thrust per square foot of frontal area than any other known engine.

A single compressor engine, the J71 offers substantial weight savings — with the same capability for quick field maintenance and repair as its predecessor, the Allison J35.

This new engine answers the Air Force's requirement for a high thrust, high compression ratio engine — employing simplicity of design and construction.

Because it meets this requirement, the J71 engine was selected for the RB-66 which will continue to carry out the Douglas tradition for building planes that can fly "faster and farther with a bigger payload."

GM
GENERAL MOTORS

Allison

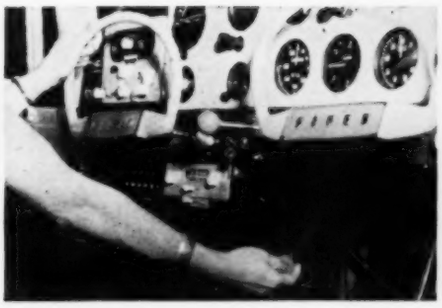
Division of General Motors, Indianapolis, Indiana

World's most experienced designer and builder of aircraft turbine engines – J71 and J35 Axial, J33 Centrifugal Turbo-Jet Engines, T56, T38 and T40 Turbo-Prop Engines.

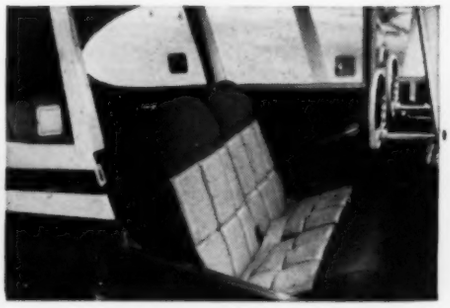
Tri-Pacer

the FAVORITE because...

TRICYCLE GEAR takes the skill out of take-offs and landings; lets you taxi with ease in high winds; gives better visibility. Tricycle gear is as logical on your plane as it is on every modern jet and airliner.



HANDLING EASE Single hand brake brings Tri-Pacer to safe, short stop. Inter-connected ailerons and rudder let you steer with wheel alone or feet alone. Tri-Pacer's the easiest-to-fly plane available.

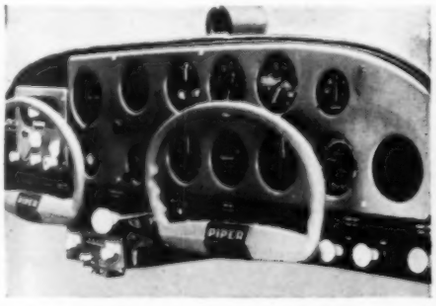


COMFORT Foam rubber seats assure restful flight. Individual ventilators keep cabin cool in summer; double heaters, front and back, assure warmth in coldest weather. Generous sound-proofing, too.

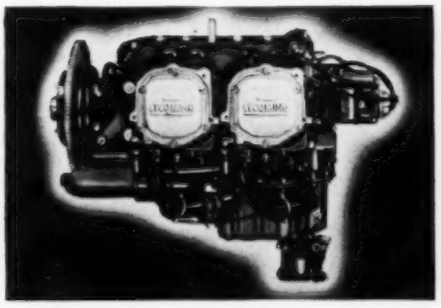
ECONOMY Priced nearly $2,000 less than other production four-place planes, the Tri-Pacer averages 15 miles per gallon, costs less than 2 cents per passenger mile, including direct and indirect costs.

BIG BAGGAGE compartment has 100 pound capacity and large separate door. Rear seat can be quickly removed to carry freight, which is easily loaded through exclusive rear door on left side.

RUGGEDNESS Tri-Pacer is really built! Welded steel fuselage and all-aluminum wing structure are covered with exclusive non-flammable, long-lasting Duraclad plastic finish for utmost reliability.



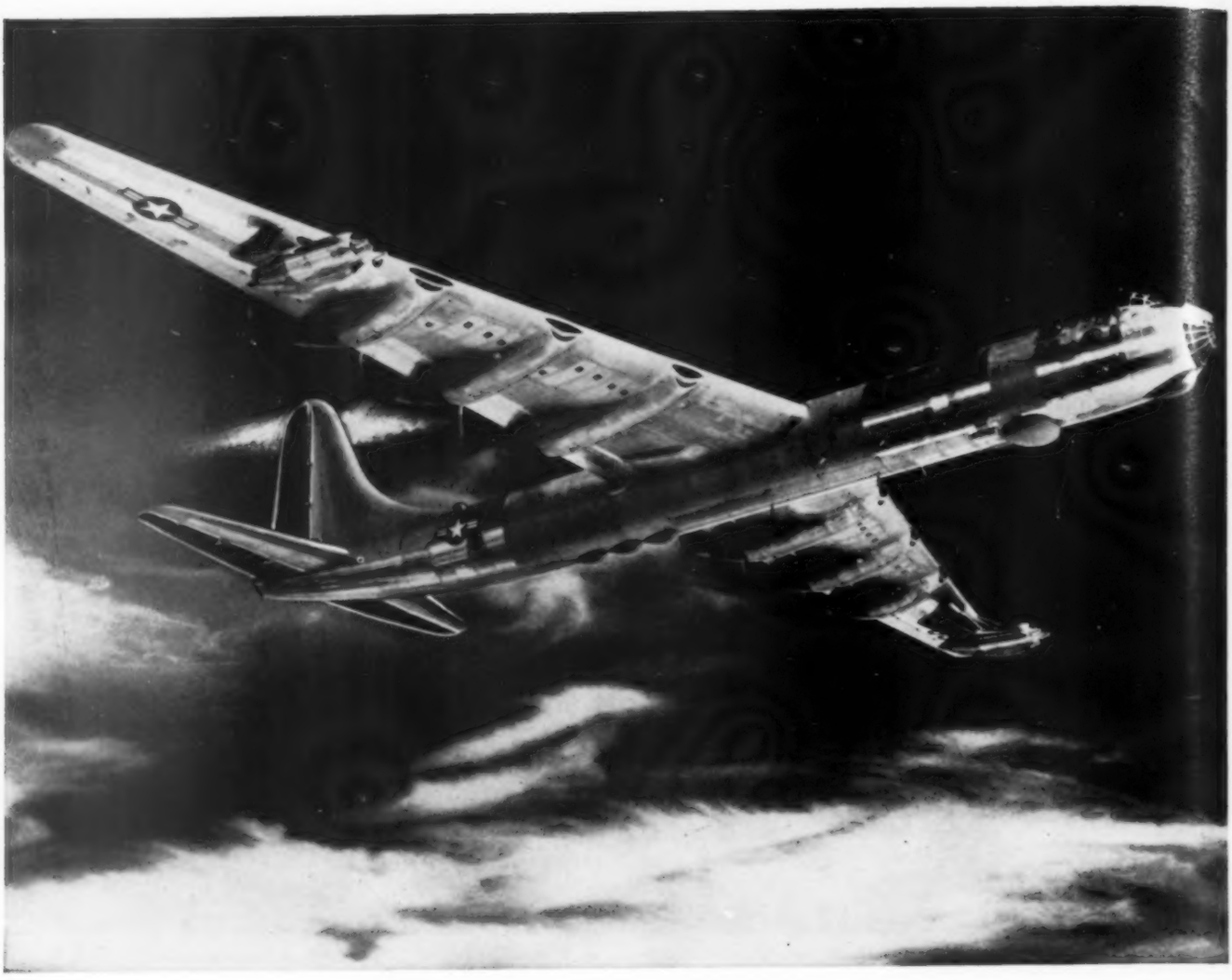
FULL PANEL accommodates gyro instruments including artificial horizon, Omni, homing loop, VHF transmitter, VHF and LF receiver—all standard in Super Custom plus other deluxe equipment.



SMOOTH RELIABLE POWER Lycoming engine is rated one of smoothest, most dependable engines ever developed for business aircraft. Low maintenance requirements help explain Tri-Pacer's economy.

PERFORMANCE For safe, practical cross-country transportation, the Tri-Pacer proves itself beyond question. Over 120 mph cruise, fast climb. Fly it and you'll say it's your favorite, too. Send for brochure.

PIPER AIRCRAFT CORPORATION Lock Haven, Pennsylvania

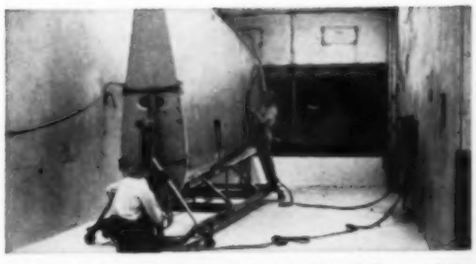


The plane that prevented a war

and TEMCO'S part in building it!

Convair's B-36's and the men of SAC were about all that stood between this country and its enemies in the late 1940's and early 1950's. Many feel that this team prevented a third World War. Today, as then, they are powerful deterents to any would be aggressor. Production of those giant planes required thousands of man hours and involved many problems. Convair helped simplify production by sub-contracting elevator, rudder, and door assemblies to TEMCO.

This is but one of many jobs wherein TEMCO has helped speed the Nation's defense effort. And it is one of the many jobs that has earned TEMCO the reputation for delivering a quality product, on schedule, at one of the lowest costs in the industry.



Giant B-36 elevator dwarfs TEMCO workers as it is wheeled into wet spray booth for its last coat of paint before being shipped to Convair, Ft. Worth, for final assembly.

TEMCO
AIRCRAFT CORPORATION
DALLAS, TEXAS

For maximum utility equip your L2 with AUTOMATIC ILS APPROACH

REMEMBER that wonderful feeling of elation and discovery when you made your first trip with the Lear L-2 autopilot? . . . the relaxed comfort . . . the freedom from fatigue . . . the absence of strain . . . the unerring navigation . . . the reassuring assistance and security in "weather"?

That is just the *beginning* of what the L-2 can do for you! With the addition of the Model 937 controller and several other accessory units, instrument pilots now have a *truly all-weather* autopilot. With push-button simplicity you can make *automatic* ILS approaches, on both localizer and glide path beams, to within feet of the runway. If you wish, you can discontinue your automatic approach at any time and your plane will still be in proper trim to complete the approach. You can level out *automatically* at any pre-selected altitude and be sure your holding pattern will *remain* at that altitude. And with all this, you still have all the other great benefits of the L-2 as a stabilizing and maneuvering autopilot.

See your nearest Lear distributor or dealer for a flight demonstration, or write for full information to LEAR INCORPORATED, LearCal Division, 3171 South Bundy Drive, Santa Monica, California.

Automatic Approach Localizer

Functions through approach coupler so that the plane automatically brackets and locks on to the ILS localizer beam. It normally goes into action inbound after the procedure turn. Just push the button to engage.

Automatic Approach Glide Path

On final approach descent, the autopilot is automatically locked on the glide path beam to put the airplane in proper position for landing. When you push the glide path button, all you need to do is reduce power to maintain correct approach speed. Take over manually only for the final touch-down.

Automatic Altitude Release

To release the plane from automatic altitude control, push this button. The airplane then remains under autopilot control, and is free to be maneuvered up or down at the discretion of the pilot.

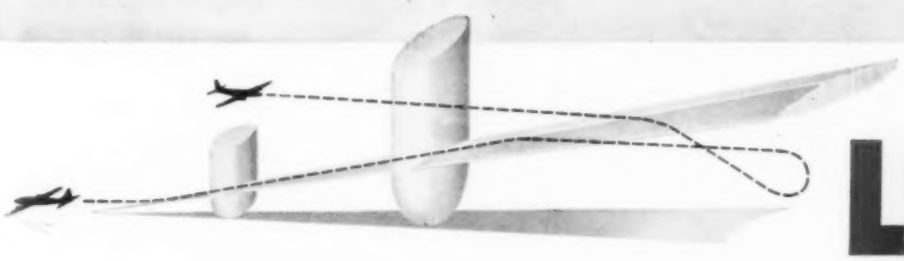
Automatic Altitude Engage

Automatically maintains the aircraft at the altitude you select, regardless of normal turbulence, turns, or CG changes. Press the button and your plane levels off smoothly, positively, and automatically.

Automatic Synchronization

A safety feature that automatically prevents sudden nose-up or nose-down attitude when the autopilot is engaged. The pitch trim of the autopilot continually and automatically follows the pitch attitude of the airplane, even with the autopilot engage switch off.

LC-14



LEAR LEARCAL DIVISION

THE SOLUTION TO EVERY AIR TRANSPORTATION REQUIREMENT

- **Full-Feathering, All-Metal Propellers.**
- **Two Proven Powerful 260 HP. Engines.**
- **Range of up to 1,088 Miles.**
- **Superior Cabin Ventilation.**
- **World-Wide Service.**

The Beechcraft Twin-Bonanza is the new favorite with those who want complete utilization and also have varied passenger and cargo requirements.

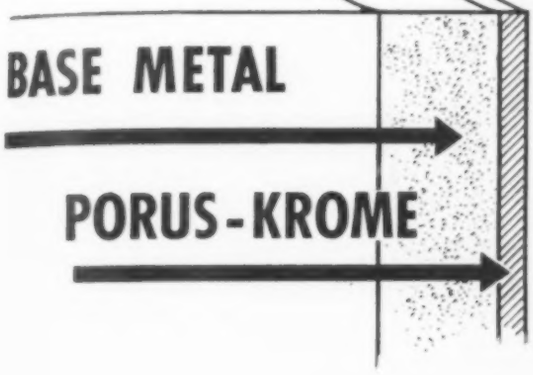
Travel is most restful in the big 6-passenger, roomy, extra-quiet cabin with its built-in visibility and all its stretch-out roominess. You cruise with a full load at 192 mph., using only 65% power, assuring greater reserve power, less engine wear, lower upkeep cost.

All in all, the new Beechcraft Twin-Bonanza offers you "far more plane—far more for your money."

Let the J. D. Reed Company furnish you with complete details on the new Beechcraft Twin-Bonanza. It is truly the one airplane that will serve all your air transportation needs.

J.D. REED CO. Inc.
SALES SERVICE
Beechcraft
DISTRIBUTOR
MUNICIPAL AIRPORT
HOUSTON, TEXAS

Reverse the Wear...



VAN DER HORST TRADE MARK

* *PORUS-KROME is a dense, hard, wear and corrosion-resistant chromium, produced by the Van der Horst Corporation of America, and which gives working surfaces an infinite number of tiny oil-retaining reservoirs for perfected lubrication.*

U. S. PATENTS
2,048,578, 2,314,604 and 2,412,698

The effects of wear on expensive, machined parts — such as aircraft cylinders — can be reversed. By Van der Horst processing, even badly worn cylinders recover their original dimensions. Then, instead of wearing out again in the usual time, they last at least twice as long.

We use channel type PORUS-KROME* to accomplish this reversal. It has been proved and accepted by the armed services, and by air carriers. One of the latter finds the entire cost of each renewal is paid for by reduced lube oil consumption. This special chromium steps up engine efficiency!

Besides that, and a much better resistance to airborne abrasives, the costs of overhaul and spare parts are cut to a minimum. Even the rusting of cylinders — always a major menace of "low time" aircraft engine life — is counteracted by chromium.

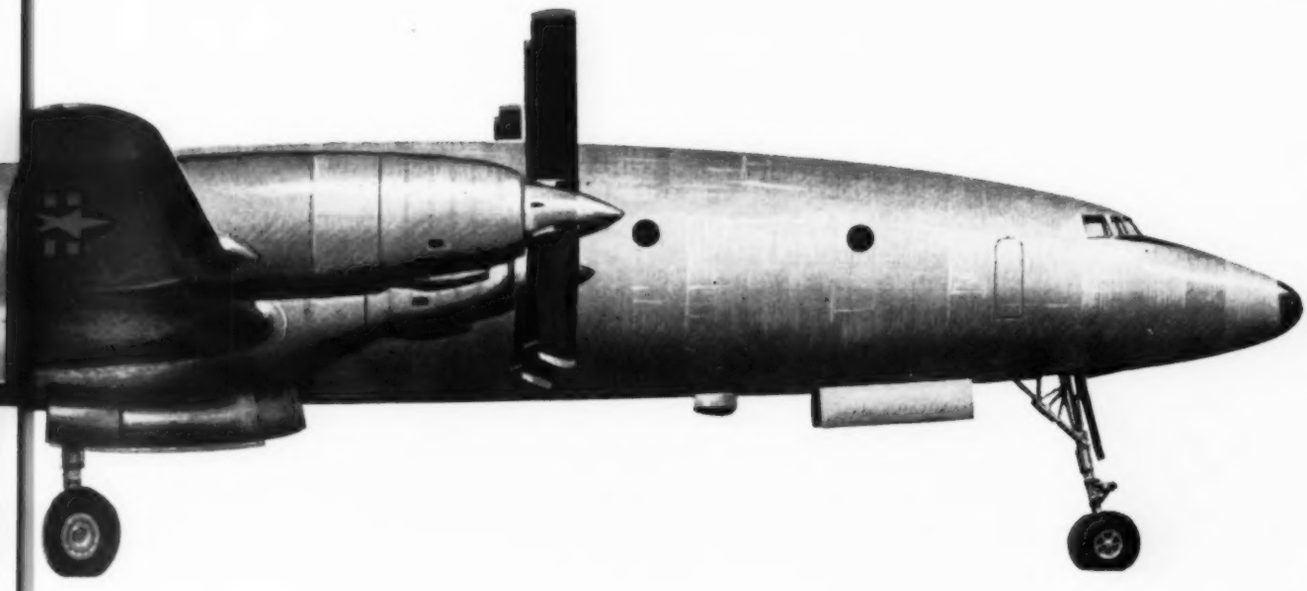
One manufacturer now specifies PORUS-KROME cylinders as standard in all *new* engines —to make them *stay* new! For equal advantage, have Van der Horst "reverse the wear". W52-3A

TERRELL, TEXAS—VAN DER HORST CORP.—OLEAN, N. Y.

Now Flying

LEADERSHIP DEMANDS CONSTANT ACHIEVEMENT

World's Fastest Propeller-Driven Airliner



Lockheed's Turbo-prop Super Constellation

Nearly 100 miles an hour faster than any propeller airliner now in service. This powerful new Super Constellation, equipped with American-designed and built Pratt & Whitney T-34 turbo-propeller engines, is now flying for the U. S. Navy. Its tests promise new speed, new performance, and greater economy potentials in the transport aircraft field. This new transport, Model 1249, is another example of Lockheed transport leadership. Watch for important news about this turbo-prop Super Constellation.

Lockheed *Aircraft Corporation, Burbank, California, and Marietta, Georgia*

LOOK TO LOCKHEED FOR LEADERSHIP

NARCO DME HAILED BY PILOTS

Distance Measuring Equipment Adds New Safety, Efficiency and Flight Ease for VFR and IFR.

Positive, continuous indication of exact position is now an everyday reality for scores of aircraft equipped with the new Narco DME. This Distance Measuring Equipment tells the pilot his exact distance from any VOR/DME or ILS/DME station.

Since the Narco DME was introduced, executive aircraft in all parts of the country have been equipped with this new electronic navigation aid and many more installations are being completed each week. Built to full airline standards, the Narco DME is also undergoing exhaustive airline evaluation with excellent results reported to date for safer and more efficient scheduled operations.

Those who are now using DME report greatly simplified VFR and IFR operations—no more cockpit calculating to estimate position; ground speed or winds aloft easily checked; ETA's on the money; holding patterns "duck-soup", and ILS approaches far simpler.

Two-Scale Reading

The Narco DME was developed under CAA/ANDB sponsorship and is the first of Narco's Sapphire line of equipment designed to the very highest electronic standards possible. It meets full CAA Type Certificate requirements for airline use and has exclusive crystal-tuning feature for positive "locked-on" tuning with no chance of off-frequency transmission or reception.

Mileage is given on the standard size, panel-mounted indicator shown above. By flipping a switch the pilot can select either the 0-200 mile scale or the 0-20 mile scale for precise close-in approach or ground speed check.

The main interrogating unit is remotely installed on a standard ½ ATR rack. Total equipment weighs only 32 pounds.

DME System Nears Completion

DME is the next link in the common-system of navigation agreed upon by the military and civil air space users and now being implemented by CAA.

The vertical pole above the dome-shaped VOR station is the DME antenna, now being installed at all VOR stations throughout the country and at many ILS sites to give the pilot precise information on distance to touchdown. 246 DME stations are already in operation with the entire system to be completed in less than a year, according to CAA.

Nation-wide Narco DME Service

To assure users of perfect operation of their Narco DME, Narco established a complete nation-wide service network and conducted an extensive service school even before the first DME was delivered.

Service centers with complete test equipment are now in operation at conveniently located spots. Thanks to this and the unitized construction which permits quick and simple interchange of basic elements, Narco DME users can be sure of continued, reliable use of their equipment.

Don't delay putting the DME system to work for you. See your nearest NARCO distributor for further details or write for brochure on the Narco DME to

narco

National Aeronautical Corp.

Ambler • Pennsylvania

Enthusiastic DME Users Report

THE CRANE COMPANY of Chicago installed Narco DME in their DC-3 after careful evaluation by their Chief Pilot Randy Mulhern (left) well-known executive pilot and former head of CAA's Airways Flight Inspection. At right is Frank Bohling, Bohling Aircraft Co., Chicago installation and service center for Narco DME.

MICHIGAN TOOL COMPANY's Lodestar has flown 75 hours now with Narco DME. Chief Pilot Paul Holst reports: "It certainly is nice to be able to give a quick, accurate answer to the old question, 'What is your present position?' Checking ground speed quickly is also a big help. We are most enthusiastic about our Narco DME."

MARION ELECTRICAL INSTRUMENT CO. Manchester, N. H. have Narco DME in their Aero Commander. "In particular we consider it a primary navigational aid on approaches to fields that are off airways or not equipped with landing systems," reports H. A. Donahue (left) Sales Manager, Aviation Division, shown with R. A. Ammon, President.

Announcing- the Royal Gull

an all-new, twin-engine gull-wing amphibian

Eleven Royal Gulls destined for military use with the Italian Air Force. These planes have been in rugged military service with the I.A.F. for more than three years without interruption in operations from any cause. They were built by the world famous Piaggio & C. plant at Genoa, Italy.

PERFORMANCE DATA AND SPECIFICATIONS

DIMENSIONS AND WEIGHTS

Overall length	35'6"
Wingspan	44'5"
Height	11'6"
Wing area	268 sq. ft.
Empty weight	3900 lbs.
Max. useful load	1940 lbs.
Gross Weight	5840 lbs.

POWER PLANT

Two Lycoming GO-435-C2B ..... 260 hp ea.*

Propellers: Hartzell, three blade, variable pitch, constant speed, full feathering

Fuel capacity ..... 190 gal.

All-metal, monocoque construction.

*Optional—Two Lycoming GO-480 (270 hp) engines. Performance ratings increase proportionately.

PERFORMANCE

Maximum speed (at sea level)	approx. 180 mph
Cruising range	over seven (7) hrs. with reserve
Cruising speed (at 7000 ft. and 72% power)	approx. 160 mph
Climb to 3000 ft.	3 min., 2 sec.
Service Ceiling (both engines)	18,000 ft.
Service ceiling (one engine)	over 5,000 ft.
Take-off run, land	787 ft.
Landing run, land	722 ft.
Time for take-off from water (no wind)	18 sec.

HERE'S a working ship that's specially designed for the man who's going places. Be he air-minded executive, aerial surveyor or company pilot, he'll go "sky-wide and handsome" in the exciting new Royal Gull.

If you're that man, this amphibian puts new, more useful wings at your command . . . provides convenience unobtainable in any other type of aircraft. Go when you want . . . at speeds approaching three miles per minute. Fly where you will . . . in 5-place executive comfort up to a thousand miles or more. And land where you please . . . any airport, lake or river can be your landing field.

Learn more about this new concept in utility and convenience. Write on company letterhead for your copy of the 8-page brochure on the Royal Gull.

A real record breaker . . . the Royal Gull, piloted by a woman, recently set a world's distance record for amphibians in its class . . . 1865 miles non-stop.

Royal

AIRCRAFT CORPORATION

Subsidiary of Kearney & Trecker Corp.

6784 W. National Ave. • Milwaukee 14, Wis.

Model PERFORMANCE!

Like our cashmere-coddlin' cheerleader, we're all set again to welcome the folks to Southwest Conference football. Each weekend, when flying pigskins fill the Cotton Bowl, flying fans fill SAC's 30-acre concrete ramp for aviation's most courteous and efficient 'round-the-clock reception. Nancy Boyd's smile sums it up: Youall come on down to Dallas for the fun! She's 18, 112 lbs., 5'4", with blue eyes, brown hair.

Southwest Airmotive COMPANY
LOVE FIELD | DALLAS

Just among ourselves

WHOSE AIR SPACE?

OCCASIONAL flare-ups in recent years between the military and civil aviation interests over use of airports and air space clearly indicate that the situation will get worse before it finds any improvement.

Perhaps there is no simple solution to the broad general problem. It looks as though every individual case will have to be fought out between the warring factions at each location where the individual interests clash, particularly in the matter of air space. The growing might of our military air services points to the fact that the services intend to cut up the air space to suit themselves even if it becomes necessary to "stack" the cards at all the air space committee meetings. In recent air space sub-committee meetings, it is already apparent that the military, particularly the Air Force, intends to run rough shod over civil aviation to get their way.

They are not concerned with the fact that civil and commercial aviation has to operate in the same air space the military operates in. They are adamantly opposed to the creation of new airways in or near their expanding operations. They openly admit they have discarded the DME system for TACAN. Little by little they are successfully chipping away the air space for civil aviation. They have taken over the approach radar system in more than two dozen high density areas—a job that historically and constitutionally belongs to the CAA. From June, 1953, to June, 1954, controlled airways have dropped from 72,324 miles to 70,713 miles. These are only a few of the indices that point to a possible conspiracy within the military to take over control of the air space if not the Federal Airways system entirely.

The whole recent history of air space conflicts would be more palatable were it not for the arrogant attitude of the military. In one way the psychology behind this attitude is understandable. They hold down the first line of defense of this nation, so actually their responsibility is one of life or death, victory or defeat, in case the Soviets choose to shoot. Theirs is a grim business—they have little time, temper or inclination to fool around and argue about how the money-making folks are going to get in their way. The civil aviation people should understand all this—especially that the majority of our military leaders are career military men without knowledge or concern for the problems of civil aviation. We pay them to be that way—specialists in protecting us, charged with one job—that of fighting and winning wars.

But somewhere between the military impatience and arrogance and civil aviation's resentment and disorganization is a common meeting ground where the problems can be worked out soberly over the table on a give-and-take, live-and-let-live basis.

With stepped-up military training and jet production, we are faced with a terrific traffic control problem. Only in one area can we point to an intelligent approach to the problem. Recently, the Air Force has taken the airline industry to its bosom by indoctrinating pilot and operating personnel on the complex problems of mixing jets with the airlines. We commend the Air Force for this significant indication they want to live safely and peacefully side by side with scheduled air transportation, at least insofar as traffic problems are concerned.

But in other areas they are woefully lacking. The air space fights and the continued propensity for ignoring the terrific amount of non-airline flying must be remedied.

Regional air space sub-committee hearings should be attended by business and industrial aircraft users and pilots. The Civil Aeronautics Administration should take it upon themselves that such air space users are notified by well-distributed bulletin board announcements throughout the region and also by releases to newspapers. This one practice would tend to equalize the meetings so that one particular group would not dominate as is now the case.

By the same token the military services must find a way to bring their problems to all civil airmen—not just the scheduled airlines. The aviation press is ready, willing and able to assist in the job. It is always better to understand than to recriminate.

A LETTER OF RESIGNATION

IT would be interesting to get a figure we realize is impossible to estimate—just now many millions upon millions of taxpayers' dollars have gone down the drain because most municipalities insist on running their airports from the city hall instead of from the airport itself by competent, professional airport managers.

Our own guesstimate, as a result of close observation of U. S. airports and airport management for over twenty years, is so staggering—in the billion-dollar neighborhood—we're reluctant to print it!

While the airport management profession has come a long way since the end of World War II insofar as high professional standards are concerned, there are still too many airports being run by remote control from the old city hall. Too many of our airport managers are little more than clerks and errand boys for the city managers, city councilmen and downtown "experts" who come and go with changing political tides and class airports right along with sewer systems, streets and the fire department. Unfortunately, airports are not that simple.

One of the outstanding successful airports in the nation is Tulsa Municipal, where the airport manager has actually run the airport for 26 years under a politically independent park board composed of five fine businessmen serving without pay. But the dissolution of the Tulsa park board is now threatened in Tulsa by agitation for a change in the municipal government to a manager-commission system. As a result of this agitation, Charles W. Short, Jr., Tulsa's famed veteran man-

ager, has submitted his resignation.

Uncle Charlie's letter of resignation is a masterpiece. Realizing that the threatened change would throw the airport into the maelstrom of local politics, Short knows from experience that such a development would undo all the progressive action and good business principles that made the Tulsa airport an undisputed national model both from a fiscal and a facilities standpoint. "After devoting 26 years to this project," Short wrote, "I cannot in good conscience remain to be a part of any such political set-up as is now threatened. Therefore, reluctantly, but firmly, I herewith tender my resignation, to take effect at your pleasure."

Short's resignation has been tabled, and if the political system is not changed, he will remain. We certainly hope no change is made because we can ill afford to add another major U. S. airport to the list of those operated out of the city hall as a political football.

If Tulsa does turn its back on tried and true successful airport management—and we seriously doubt they will in view of the fact their airport has not required one red cent of local tax money for 26 years—maybe they can go whole hog and emulate the Del Norte County (California) board of supervisors' action. It recently combined the airport manager's job with that of the dog catcher!

ROOM FOR IMPROVEMENT

PENNSYLVANIA'S new state aeronautical chart, published last month by the Pennsylvania Aeronautics Commission, is a noteworthy document, incorporating many improvements and innovations which we hope will be adopted by the Coast and Geodetic people who are responsible for U. S. Aeronautical Charts.

We are especially impressed by the use of a strong brown color on the Pennsylvania chart to indicate major highways, instead of the vague and shadowy half-tones used by Coast and Geodetic. Contours are shown in grey instead of conventional browns, eliminating excessive lines to depict gradient tints of elevation. A much stronger yellow is used to depict the shape and outlines of towns and cities. A strong solid blue is used for water areas instead of conventional thin blue outlines.

Runways of major airports are drawn to scale and on the back of the chart appears a complete airport directory which provides every item of information needed for every airport. We also like the statute mile scale at the top of the chart, the map key using the alphabet and numbers to make reference location easy, and especially the numbering of fire towers and prominence given TV and radio towers.

Whether you fly much in or over Pennsylvania, it might be profitable to write for a free copy of the chart, look it over and send your ideas to the Coast and Geodetic Survey, Department of Commerce, Washington, D. C. While improvements come slow due to budgetary limitation, Coast and Geodetic always welcome comment from the user. Copies of the Pennsylvania chart are available from the Pennsylvania Aeronautical Commission, Harrisburg State Airport, New Cumberland, Pennsylvania.

INDEX TO SAFETY

ADDITIONAL proof of progress in civil aviation safety came last month when one of the nation's largest life insurance companies again reduced premium for flight coverage to licensed pilots. As of September 1 Equitable Life Assurance

(Continued on page 57)

WORLD'S FASTEST TURBOPROP TRANSPORT is this new 440-mph. Lockheed R7V-2 for the U. S. Navy. A Super Constellation version with four 5,500-hp. Pratt & Whitney T-34 turboprop engines, its Hamilton Standard propellers are 15 ft. in diameter and have constant-chord blades 2 ft. wide. It can fly 16-ton loads and its fuel capacity is 8,750 gals., sufficient for a 3,000-mile hop with full fuel reserves and a 10-ton load. Maximum take-off weight is 150,000 lbs. and service ceiling is 35,800 ft. Two are being readied for the Navy and two for the U. S. Air Force, which designates the model as YC-121F.

—(Lockheed Photos.)

Only a synthetic oil meets its lubrication specs.

How tough are lubricant specifications for new U. S. turbo jets? Well, they call for an oil pumpable at -65 degrees F, yet able to lubricate critical turbine bearings at over 450 degrees F. They call for flash point, viscosity, and load-carrying properties that just can't be combined in any existing mineral oil.

Esso research teams went to work on the problem. The result is a synthetic oil, Esso Turbo Oil 15. With more than 200,000 hours of engine test-stand and flight experience, it has met all specifications and tremendously increased turbo jet and turbo-prop performance.

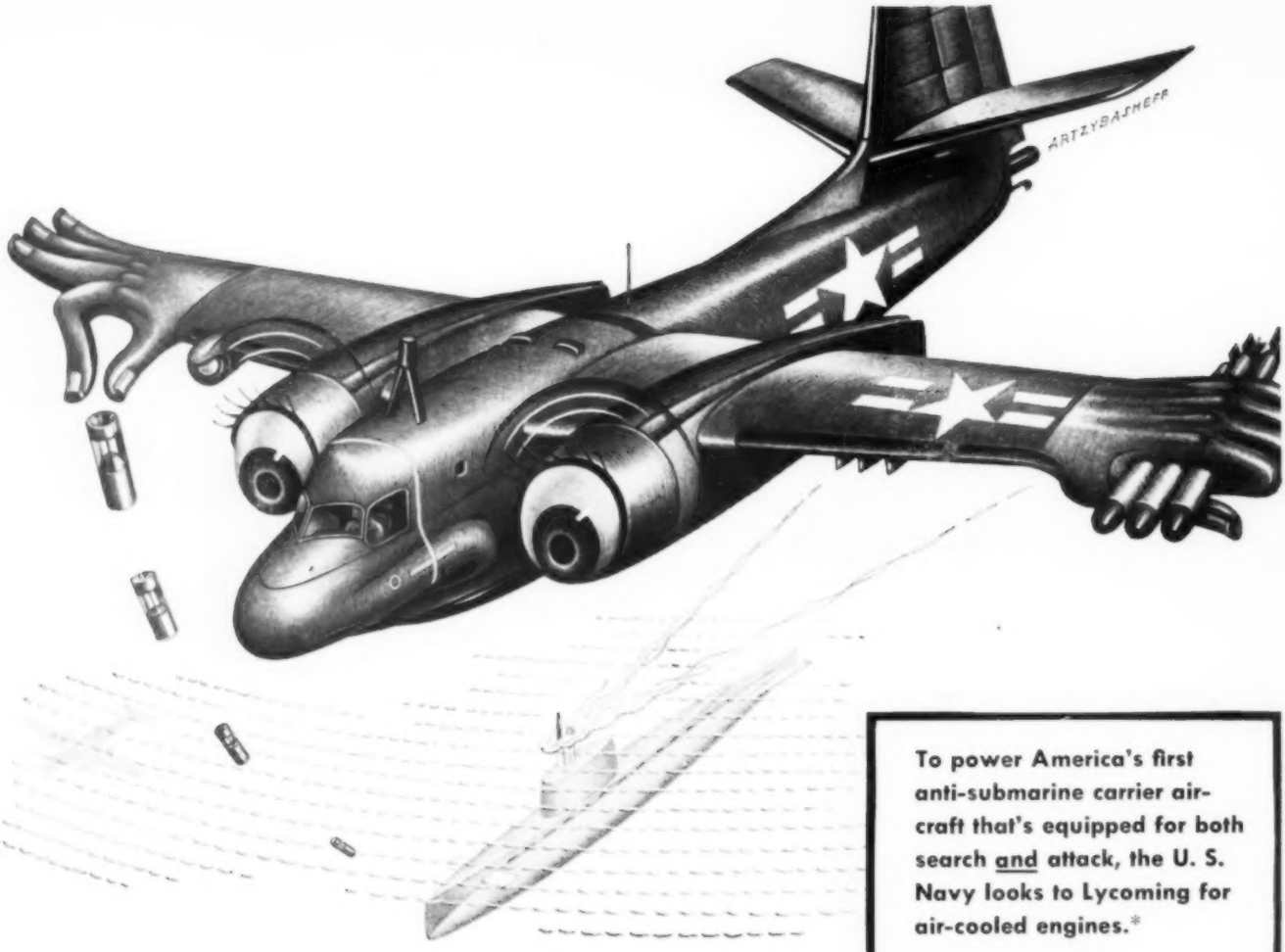
Esso Turbo Oil 15 lubricated the premier flights of the North American F-100 (above), Boeing 707 and B-52, Convair F-102, Douglas A4D. A proud record for the Esso research teams.

Continuing research at Esso laboratories promises an even greater future for synthetic oils as gas turbine performance reaches new highs.

Esso

AVIATION PRODUCTS

SOLD IN: Maine, N. H., Vt., Mass., R. I., Conn., N. Y., N. J., Penna., Ohio, Del., Md., D. C., Va., W. Va., Ky., N. C., S. C., Ga., Fla., Ala., Miss., Tenn., Ark., La., Texas.



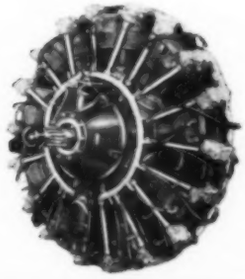
Stout "hearts" for new Navy sub killers

Patrolling endless seas in search of enemy subs . . . blasting them out of action with newest destruction devices . . . this Grumman S2F-1 "hunter-killer" depends on the stamina of twin Lycoming-built engines to keep it high and dry.

This is another Lycoming contribution to aviation progress. For Lycoming engines also fly military missions in aircraft ranging from liaison planes to trainers to helicopters. They have distinguished themselves in civilian aviation, too—particularly in single- and twin-engine planes.

Do *you* need this kind of dependable air-cooled power . . . or any of the diversified services listed above our signature? *Whatever* your problem . . . *look to Lycoming!*

To power America's first anti-submarine carrier aircraft that's equipped for both search and attack, the U. S. Navy looks to Lycoming for air-cooled engines.*



*Wright-Cyclone engines built by Lycoming under license from Curtiss-Wright Corporation, Wright Aeronautical Division.

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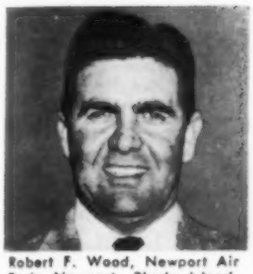


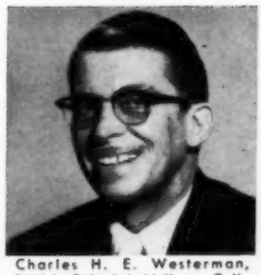
Robert F. Wood, Newport Air Park, Newport, Rhode Island.

A M "Sime" Bertolet, Reading Aviation Service, Inc., Municipal Airport, Reading, Pennsylvania

H. Leibee Wheeler, Buffalo Aeronautical Corporation, Buffalo Municipal Airport, Buffalo, New York.

Don Hood, Air Sales & Service, Inc., Weir Cook Municipal Airport, Indianapolis, Indiana.

Don Pennington, Southern Aero, Inc., Municipal Airport, Atlanta, Georgia.



Charles H. E. Westerman, British Colonial Airlines, Calle Lopez No. 1 — Despacho 502 Mexico, (1) D.F., Mexico.

O. B. Callan, National Aero Sales Corp., Midway Airport, Chicago, Ill.

Max R. Brand, Aero Commander Distributors, Hangar 3, P.O. Box 8426, Municipal Airport, Tulsa, Oklahoma.

H. Warren Halladay, Stonnell and Halladay, Easton Municipal Airport, Easton, Md.

Cheston M. "Ches" Newhall, The Babb Co. (Canada) Ltd., Montreal Airport, Dorval, P.Q.

Don Vest, Vest Aircraft & Finance Co., P. O. Box 5306, Sky Ranch Airport, Denver, Colorado.

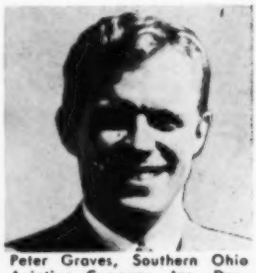
Gene Hudman, Carolina Division of Southern Aero, Inc., Charlotte, North Carolina.

Louis Humphreville, Executive Aircraft Corp., Detroit City Airport, Detroit 13, Michigan

George Harte, Harte Flying Service Inc., Chanute Municipal Airport, Chanute, Kan.

B. G. Vandre, Van's Air Service, Municipal Airport, St. Cloud, Minnesota.

Art Meurer, Arthur Meurer Co., Inc., LaGuardia Field, New York, N. Y.



Peter Graves, Southern Ohio Aviation Company, Inc., Dayton Municipal Airport, Vandalia, Ohio.

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TULAKES AIRPORT • OKLAHOMA CITY, OKLAHOMA

Our first chance for a picture came after flying all night from Hatfield, England, to Iceland. Take-off above was at Reykjavik, Iceland. Heron will clear 50-ft. obstacle within 2,250 ft. and will land over 50-ft. obstacle within 1,995 ft. at 13,000-lb. gross weight in no wind.

Across the Atlantic By Executive Heron

Westbound delivery of a 4-engine business plane

By TOM ASHLEY

A DELIVERY flight in a de Havilland Heron across the North Atlantic from the de Havilland factory at Hatfield, England, to Idlewild Airport, New York, was our introduction last month to the latest development in business flying — 4-engine private planes. This was the first Heron in the United States and will be a demonstrator for de Havilland and its distributors, who hope

Two of the Heron's 250-hp. engines frame this view of a North Atlantic cloud layer (left). A few minutes later, we were in clouds and picking up ice (below). —(FLIGHT MAGAZINE Photos by the author.)

to be as successful with it as they have been with the twin-engine de Havilland Dove. Some 70 Doves are operated in U. S. business flying.

As the smallest 4-engine air transport on the market, the Heron has an empty weight (without radio) of about 8,100 lbs. and grosses 13,000 lbs., for a useful load of slightly less than 5,000 lbs. It is powered by four 6-cylinder de Havilland Gipsy Queen Series 30 Mark 2 engines rated at 250 hp. each and driving all-metal, constant-speed de Havilland propellers. Performance includes 183-mph. cruising speed at 65 per cent of power at 8,000 ft. and with a fuel consumption of about 50 gals. per hr. A special executive version for the U. S. market has 500-gal. fuel capacity for an all-out range close to 10 hrs. This executive version has spacious cabin provisions for 8 persons.

Our delivery flight got away from the de Havilland factory at Hatfield late on September 9 — we had been delayed by a busy afternoon at the annual Farnborough air show and display of the Society of British Aircraft Constructors and a brief morning visit to the Vickers factory which is turning out Viscount turboprop airliners for world airlines including Capital in the States. It was 6 p. m. when we took off for home. On such a lengthy trip, it really didn't matter whether we began our trip early or late. The important thing was to keep going once we had made a start.

Our first stop was 155 miles across England at Chester, where de Havilland Dove production is under way. We had strong headwinds and 1 hr. 10 mins. from take-off we landed in a crosswind of something like 45 mph., stopping only long enough to pick up a life raft and Gibson Girl radio transmitter. From there it was up the Scottish coast and into some heavy weather to Prestwick, Scotland, covering the 196 miles in 1 hr. 20 mins. and making a GCA approach with an 800-ft. ceiling to land in high winds and rain. Just before touching down on the runway, we heard what sounded like a fusilade of heavy brickbats hitting the Heron's large flaps — a large flock of gulls had been hit. We had birds in air scoops and blood and feathers all over the props and wing leading edge when we looked things over on the ramp, but the only damage was a dented nosewheel cover.

Our next hop would be our first over-water leg — some 755 nautical miles to Keflavik, Iceland. Jack Ford, our pilot, was well prepared. He founded his aircraft ferrying organization, Fleetway, Inc., just after World War II and Fleetway has since delivered 4,000-odd aircraft to various parts of the world. Close to 1,000 of these were delivered via transoceanic crossings. Fleetway now operates more than a dozen flight crews but the number varies with the workload, sometimes reaching 70 crews. Ford himself has made 70 Atlantic crossings. On this trip, we also had his wife, Mary, whom he met while she was ferrying Mosquito and other British aircraft in Britain during the war. Mary has Atlantic crossings in her log, too, and is thoroughly familiar with the routes. Our radio operator-navigator, Clinton (Tex) Sessoms, formerly of Brownsville, Texas, was also well prepared. Sessoms has 11 years of ocean hopping behind him — he has made close to 400 Atlantic crossings as radio operator and navigator.

We were impressed at Prestwick by

De Havilland Executive Heron
(Factory Data)

Following data is for 10-place, 8-passenger Series 2 Executive Heron equipped with four de Havilland Gipsy Queen Series 30 Mark 2 engines rated at 250 hp. each at 2,500 rpm. for maximum and continuous operation, driving four de Havilland 1,000-size two-bladed, all-metal, constant-speed, non-feathering propellers.

Total Power, maximum and continuous, hp.	1,000
Gross Weight, lbs.	13,000
Basic Weight, lbs. (Includes tanks for 500-gal. fuel capacity, de-icing system (231 lbs.), wash basin and 2.4 gals. of water.)	8,044
Tare weight, lbs. (Includes 225-lb. radio allowance, 8 cabin seats and lifebelts for 10 persons, 4 seat bed cushions, chemical toilet with curtain, spare chests, liquid dispenser, complete upholstery and soundproofing, wardrobes, mattress stowage, chair pillows, intercom telephone, 2 sets of tables, loose-leaf tables and carpets)	8,852
Payload Capacity, lbs. (Payload capacity includes 8 passengers at 165 lbs. each; forward luggage capacity of 300 lbs.; rear luggage capacity of 750 lbs., and 130 lbs. additional load in cabin chests.)	2,500
Span, ft.-ins.	71-6
Length, ft.-ins.	48-6
Height, ft.-ins.	15-7
Track, ft.-ins.	16-8
Wing Area, sq. ft.	499
Wing Loading, lbs. per sq. ft.	26
Span Loading, lbs. per sq. ft.	2.54
Power Loading, lbs. per hp.	13
Take-off over 50-ft. obstacle, ft.	2,250
Take-off over 50-ft. obstacle with failure of critical engine at safety speed, ft.	2,595
Distance to safety speed, ft.	1,650
Take-off safety speed, mph.	92
Landing over 50-ft. obstacle, ft.	1,995
Rate of Climb, fpm.	1,140
Rate of Climb with critical engine inoperative and its propeller windmilling, fpm.	610
Service Ceiling, ft.	18,000
Cruising Spd., 2,100 rpm, 65% power, 8,000-ft. altitude, mph.	183
Fuel Consumption for above cruise, gph.	50
Stall Speeds	
Gear and flaps retracted, mph.	90
Gear up, 20-deg. flaps, mph.	79
Gear down, 60-deg. flaps, mph.	73

NOTES: All performance is at sea level and 13,000-lbs. gross weight unless otherwise specified. Take-off and landing figures are for no wind condition.

From 11,000 ft., this is how the Greenland Ice Cap appeared with its vast snowfields and glaciers. Crossing Greenland to reach Bluie West 1, it was comfortable to know we had four engines even if they were small ones. The little de Havilland Gipsies never purred as sweetly as they did here.

This ramp sign means what it says to Bluie West I transients stopping at Greenland—USAF officers and service crews made us feel at home, and it was a beautiful sunny afternoon. Left to right by the Heron are Jack Ford, pilot; his wife, Mary, co-pilot; our passenger, Mrs. Frank Lloyd, whose husband is Comet jet airliner sales manager for de Havilland's, and Tex Sessoms, our navigator.

the thoroughness of the weather briefing available to aircraft crews headed out over the water. They are furnished comprehensive folders containing two weather flight charts, one for surface conditions and another for cruising altitude, plus an ingenious "flight forecast" chart on which a cross-section of the route is sketched to show weather conditions along the route as forecast by mileage zones, plus other material such as notices to airmen and general information on airports and communication facilities. Thus a departing crew carries with it a complete picture of flight conditions. The two weather charts map pressure patterns and their features, while the flight chart details as much as possible of the en route weather to be encountered. These details include cloud conditions and ceilings at all levels from the surface up to 35,000 ft., visibility forecasts, winds, and temperatures.

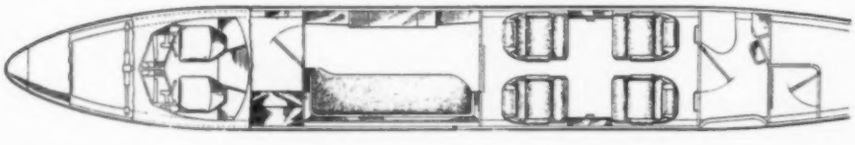
A big low just behind Prestwick was making heavy weather but the forecaster told us we should be clear of it by the time our flight had left the islands behind. That's how his weather folder showed it. But he admitted that something was wrong with the picture because he had completely missed his local wind forecasts all night. We remembered this later when leaving the islands after a midnight take-off, for his forecast of clearing conditions was in error. We were in the clouds to stay, our winds were stronger with more drift than he had expected and we were soon picking up light ice. Our track to Iceland was 310 degrees. Magnetic variations ranged from 14 degrees at the start to 28 degrees at the destination, these corrections being added to our track for the proper magnetic headings. Navigator Sessoms began taking fixes about an hour out of Prestwick, taking four during the second hour of flight to get squared away accurately as far as speed and drift were concerned. The first two were radio fixes, the third was determined by visual sighting of an island light and the fourth was by dead reckoning. We had drifted about 30 miles north of our track but were making only slight corrections until farther along.

At a point 3 hrs. and 20 mins. out a radio fix showed we still needed additional correction. This fix was made by using the European console signal system. A German war development, the console system employs a low frequency transmitter which radiates dots and dashes by numbers and minutes. Our large aircraft position chart pictured the various console stations with ever-widening circles reaching from them across the North Atlantic. These circles are segmented with the number of dots or dashes which can be counted in each segment. From this and from a bearing taken from a radio beacon off our right in the Faroe Islands, we had an excellent fix. It showed we were some 22 minutes from the first weather ship we would contact — Weather Ship 4YI, whose position was also listed on our chart. We then made sufficient correction in our heading to take us close by the weather ship so we would be accurately squared away for the remainder of the leg to Iceland.

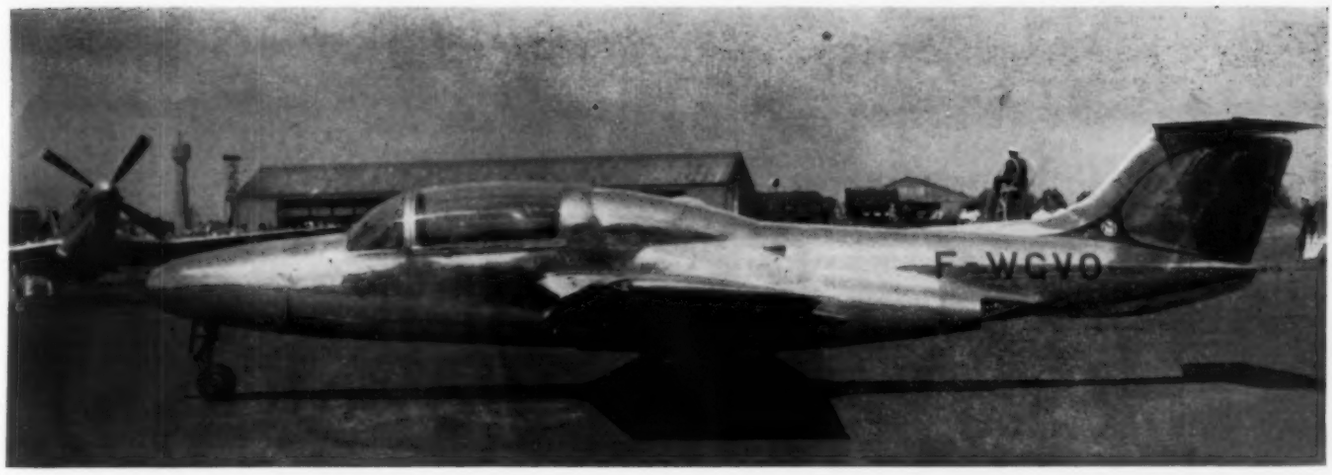
The international operation of weather ships has become a valuable asset to transoceanic flying. Stationed between major land masses, they not only fill in the long gaps between weather observation and reporting stations but provide excellent communications and navigation facilities. Continuance of these weather ships was threatened during the past year by an ill-conceived economy campaign. Our opinion is that they should be maintained as a primary essential to air commerce and air defense operations.

Past the weather ship, we began looking for signs of dawn as cloud conditions gave promise of improving. But we were still picking up occasional ice as we maintained our 8,000-ft. cruising altitude. The Heron performed impressively, even though it had no de-icing and anti-icing equipment. If necessary, we could always seek warmer air at a lower altitude for the icing level was above 6,000 ft.

(Continued on page 58)



Of several arrangements available, two executive Heron interiors are shown in these sketches. Above is the standard 8-seat interior. The interior below is divided, with a small galley behind the cockpit, a fixed couch and cold storage in a forward compartment and four seats with tables in the rear. Aft of the toilet compartment is a small wardrobe. The Heron's cabin length is 19.5 ft. with headroom of 5 ft. 8.5 ins. As a feeder airliner, it carries 14 to 17 passenger seats. Upholstered pads fit between the pairs of facing seats to form a couch for sleeping. Chests shown in the top sketch behind the cockpit and between the front and rear groups of seats are for storage. The Heron cabin has 14 large picture windows.



Clean lines of high-performance jet lightplane design are seen in this side view of the Morane-Saulnier 760. Cabin is pressurized.

Twin-Jet Lightplane

AN interesting 4-place jet-powered lightplane has been developed in France and offers commercial as well as military possibilities. It is the Morane-Saulnier 760, pictured on this page.

The M-S 760 has cabin pressurization and is powered by two Turbomeca Marbore II turbojets rated at 880 lbs. of thrust each.

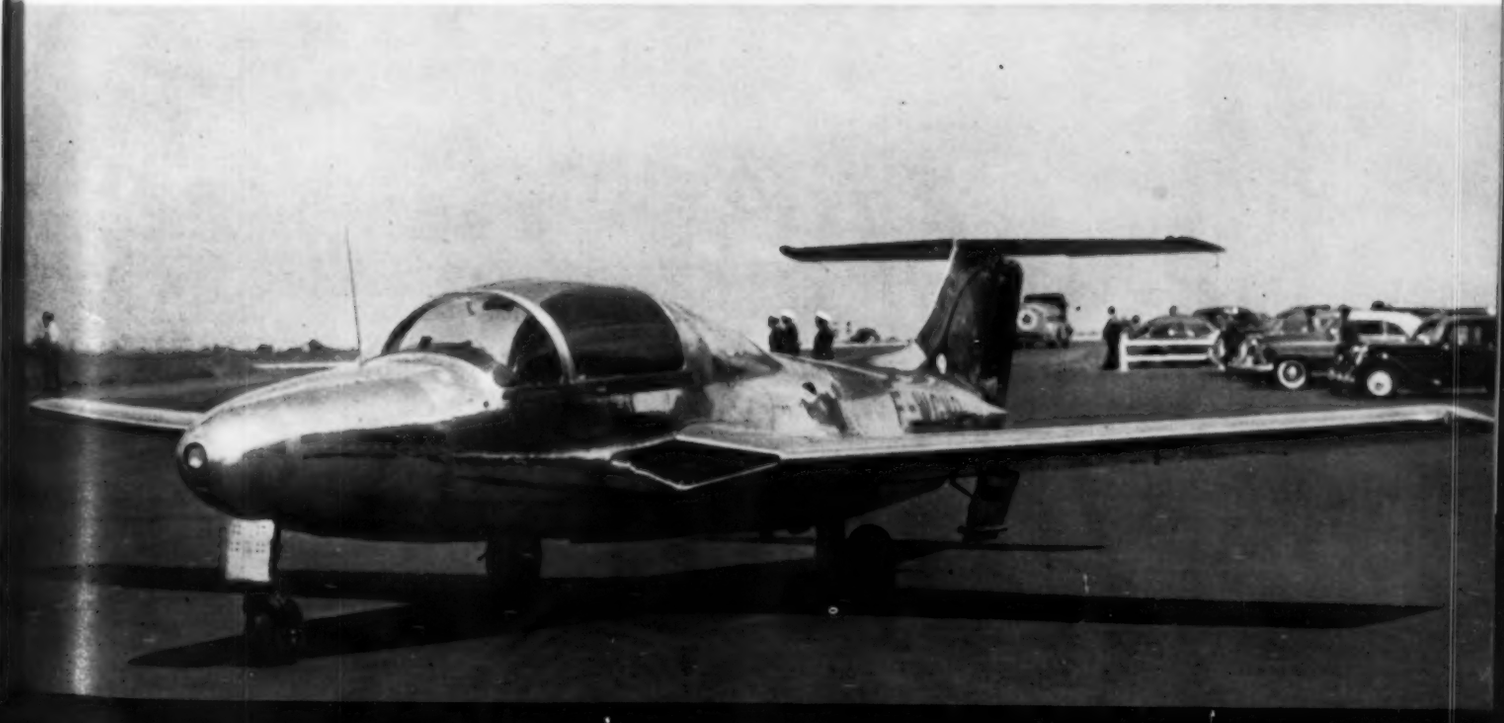
Performance figures, as furnished by the manufacturer, include a maximum cruising speed at sea level of 420 mph., and a maximum cruising speed at 20,000 ft. of 358 mph. Maximum range with tip tanks is 870 miles, this being figured at about 100 gals. per hour for fuel consumption.

Take-off run is said to be 2,919 ft., with a sea-level rate of climb of 2,500 fpm. Time to reach 20,000 ft. is 10.5 mins. and service ceiling is 36,000 ft.

The M-S 760 has an empty weight of 4,400 lbs. and a gross weight of 7,275 lbs. Span is 30 ft., length 31

(Continued on page 54)

Wing-root intakes are for two Turbomeca Marbore II jet engines rated at 880 lbs. of thrust each. With tip tanks, fuel capacity is just under 300 gals. M-S 760 sits close to ground, having 8 ft. height at high-riding horizontal stabilizer.
—(Union Syndicale des Industries Aeronautiques Photos.)



Folland Midge (above) is prototype of new scaled-down British fighter. At Farnborough, it landed very fast at about 140 mph. Tiny Fairey Delta (left) is used to study delta wing characteristics.
—(FLIGHT MAGAZINE Photos.)

British Air Show

AIRCRAFT ranging from lilliput fighters to delta-winged heavy bombers and from bush workplanes to transoceanic jet transports featured the Society of British Aircraft Constructors' annual air show and display last month in England at Farnborough. Just as much in the spotlight as any of the scores of beautiful airplanes were the new and powerful jet engines which the British are producing.

Farnborough has become a fixture of the British aviation industry. Intended as a combination trade fair and annual get-together for folks in aviation, it has also become a mecca for aviation people from all parts of the world. The 1954 program, for example,

Fog shrouding top wing surface of the Vickers Valiant bomber at left was created by shock waves over thick wing as the 4-jet "Black Bomber" made a fast low-level run in Farnborough's very humid air.
—(FLIGHT MAGAZINE Photo.)

Star performer among Britain's new V bombers is the long-range A. V. Roe Vulcan, pictured here at start of a take-off run which was stopped half way down the runway for unexplained reasons, the flight being called off. It is powered by four Bristol Olympus jets of about 10,000 lbs. thrust each and has a 100-ft. span for its delta wing.
—(FLIGHT MAGAZINE Photo.)

attracted more than 5,000 invited guests from abroad, including many Americans. Exports are a prime essential for British industry growth and progress and it was proudly displaying in this year's exhibition many aircraft which are in worldwide use, both military and commercial. But there was intense local interest in the show, too, with 160,000 persons in attendance on the day the show was open to the general public.

The flying display was modest and restrained although some of the aircraft were spectacular even when flying straight and level. The industry's leading test pilots put the planes through their paces and avoided stunt flying altogether. Rain showers and low-hanging clouds kept them below 1,000 ft. most of the time but did not prevent a full schedule of flying which had been well organized to avoid confusion and delays.

Production-model airplanes on display reflected British progress in equipping service squadrons with high-performance aircraft which were so long in the prototype stage. However, several new prototypes were shown. One was the Folland Midge, developed to investigate the capabilities of a "scaled-down" jet fighter in the interests of production simplicity and economy. Like most British jets, the tiny Midge is beautiful in workmanship. The production version will be known as the Gnat and Folland Aircraft claims 25 Gnats can be produced with the same number of airframe man-hours as 5 standard fighters, with only half as much tooling, while 20 equipped Gnats could be produced for the cost of 6 standard fighters. Gnat dimensions include span of 20 ft. 8 ins., length of 28 ft. 9 ins., height of 8 ft. 9 ins. Flight demonstrations of the Gnat prototype, however, showed it to have an extremely high landing speed for such a small aircraft although it is in the speed range of the F-80 with a top speed of about 525 knots. Its wing has 40-degree sweepback.

Another prototype in the flight display was the tiny Fairey Delta, which is even smaller than the Midge. Its chief purpose has been to evaluate the delta wing.

In fighters, however, prime interest

(Continued on page 55)

High lift devices feature the new Short Seamew ordered by the British Navy for anti-submarine warfare. It is powered by an Armstrong Siddeley single Mamba turboprop installed low in the nose and has fixed gear.
—(FLIGHT MAGAZINE Photo.)

Two men easily lift 180-lb. tailless sailplane to move it around the ramp. In background is section of a new low-cost sailplane T-hangar designed and erected by Texas Soaring Association members at Grand Prairie.
—(FLIGHT MAGAZINE Photo.)

The "Flying Plank"

An original tailless sailplane surprises the experts

THE thing flies! That was the general exclamation from skeptical observers at the Texas Soaring Association's Grand Prairie Airport a few weeks ago when a young native of Scotland named Jock Powell cut loose from his auto tow and landed straight ahead, followed by an airplane tow with a release at 3,500 feet and a thermal ride of 1,500 feet for a 10-minute over-the-airport test flight.

Since that early Sunday morning under hot Texas skies the EPB-1 "Flying Plank" has chalked up 10 hours of air time.

Al Backstrom, a Chance Vought structures engineer, thought up "the thing" and persuaded three others to go along with the idea — Jock Powell, ex-RAF pilot and now a television repairman; Phil Easley, a contractor, and Eric Craik, a salesman, soaring enthusiasts all. Backstrom got the idea of building a flying plank while a student under the renowned Gus Raspet at Mississippi State College. The

(Continued on page 54)

The EPB-1

Wing span, ft.-ins.	26-6
Length, ft.-ins.	7-9
Wing area, sq. ft.	106
Aspect ratio	6.6
Empty weight, lbs.	180
L/D max.	18-1
Rate of sink, fps.	3.3

Flight and ground views of EPB-1 show its simplicity, while its builders pose below by the tiny cockpit. Left to right are Jock Powell, Phil Easley, Eric Craik and Al Backstrom.
—(FLIGHT MAGAZINE Photos except upper left from Chance Vought Aircraft.)

Part of Tulsa's new Western Village Hotel facilities are pictured above, with the scene at right showing a Bell helicopter from Fort Worth coming into its heliport on opening day. Fly-in breakfasts are served every Sunday.

Tulsa Resort for Fliers

WESTERN Village Hotel, a swank new suburban resort on U. S. Highways 66 and 75 just east of the municipal airport in Tulsa, Oklahoma, recently opened its private air strip and heliport and welcomes fly-in guests for overnight or season-long visits. It has announced that it will serve a special fly-in breakfast every Sunday at 10 a. m., featuring specialties such as sausage kabob and "upside down French pancakes," thereby offering a good opportunity for many plane owners to fly in for brief visits and somewhere to go on Sunday hops.

Located on a 320-acre plot measuring 1 mile long and half a mile wide, Western Village is a complete resort center and has a swimming pool, an 18-hole tournament-class golf course, a golf driving range, tennis, badminton and shuffleboard courts. Its turf flight strip is 1,700 ft. long with clear approaches and 250 ft. wide Unicom VHF communications on 122.8 megacycles are maintained—Western Village is the first hotel having two-way radio communications at its registration desk for the use of airmen. The Unicom channel is guarded from dawn to dusk.

Special catering is extended to groups of 10 to 100 persons, with private dining rooms and pool-side

(Continued on page 54)

Cabana suites surround the Western Village heated swimming pool (below). On opening day, fly-in breakfast was served to 137 fliers and Manager Ray Lewis helped fuel the planes (lower right). The 1,700-ft. long air strip, with clear approaches, is pictured at right with Riley Twin taxying in.

The "airplane look" is introduced to light helicopters for the first time by the new Cessna CH-1, which features simplified rotor and transmission systems and conventional aircraft construction. —(Cessna Photo.)

Cessna's New Helicopter

NEARING the end of CAA certification tests, Cessna Aircraft Company has revealed some of the features of its new CH-1 helicopter. It has been under development for more than 30 months.

The CH-1 is a significant development because it pioneers several new ideas in small helicopters. Chief among these are simplified rotor and transmission systems, both of which offer ruggedness and low-cost maintenance advantages. Cessna has not divulged details on either, however.

Construction of the CH-1 airframe follows conventional aircraft methods and the helicopter achieves more of an "airplane look" than other current rotary-wing aircraft. Chief reason for this is the nose installation of its power plant in a conventional-appearing engine cowling forward of the cabin.

Supercharging was adopted as a "must" by Cessna from the outset of the development and the engine in its CH-1 is a supercharged FSO-470 Continental engine which is fan-cooled but which delivers 260 hp. net to the transmission. This not only gives the CH-1 considerable more horsepower than any other conventional helicopter in its category but makes it the first supercharged helicopter in its class for improved performance at altitude and

(Continued on page 54)

First flight view of the CH-1 emphasizes the spaciousness of its cabin and the nose-installation of its engine. The power plant is a supercharged and fan-cooled Continental 470, delivering 260 hp. to the transmission for high performance of the 3,000-lb. aircraft. Rotor diameter is 35 ft. —(Cessna Photo.)

This Marine Corps Sikorsky HRS-2 can lift from a mountain strip at 5,000-ft. elevation a load twice as great as a standard HRS-2 because it is equipped with a new rotor rocket system developed by Reaction Motors, Inc. Tiny rocket tubes at each rotor tip give it 20 per cent additional power. Dome atop rotor head contains rocket fuel.
—(Reaction Motors Photo.)

Rotor-Tip Assist Rockets

AUXILIARY power for helicopters has been demonstrated in a U. S. Marine Corps experiment in which tiny liquid-propellant rocket engine are fitted to the rotor tips of a Sikorsky HRS-2 (S-55) helicopter.

Reaction Motors, Inc., of Rockaway, New Jersey, rocket engine pioneering firm, developed the auxiliary power system involved. This system utilizes a "monopropellant" engine — it burns a single propellant — hydrogen peroxide — which contains both fuel and oxidizer characteristics. When introduced into the combustion chamber under certain conditions, the peroxide decomposes catalytically and is transformed rapidly into high temperature steam which creates the engine's thrust.

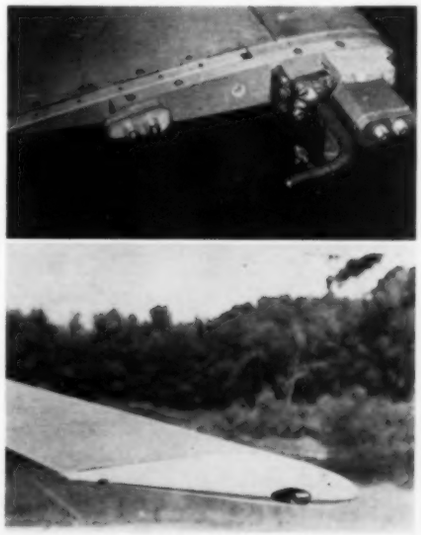
Dome-shaped hydrogen peroxide propellant tank holds sufficient fuel for six minutes of operation or 20 to 25 rocket-assisted take-offs. Centrifugal force automatically pumps fuel through tubes in blades to tip-mounted rockets.

Chief advantage of the monopropellant engine is its simplicity. The engines themselves weigh only 1 lb. each. These are installed in the tips of the three rotors on the HRS-2, neatly faired in and each resembling a simple bent tube which exhausts its gases rearward to provide thrust for the rotor it drives. Propellant lines inside the rotor blade connect these exhaust tubes to a dome-shaped propellant tank atop the rotor head. Reaction Motors says that "a few simple valves and controls" complete the system. Its total dry weight, including all parts, is only 67 lbs. In operation, it produces thrust equivalent to about 20 per cent of the HRS-2's main powerplant. To obtain equivalent power increase by a larger main reciprocating engine would require a 200-lb. weight increase, it is said.

The new system, called ROR for rocket on rotor, carries sufficient fuel for six minutes of continued operation. However, the tiny tip engines can be switched on and off at will. This way, the supply of peroxide is sufficient for 20 to 25 take-offs using rocket assist.

Benefits include:

1. Greater loads for sea level take-off.
2. Same loads for take-off from mountainous terrain at greater altitudes.
3. Higher rate of climb and hovering ceiling at any fixed gross weight.
4. Improved glide performance and control if the main engine fails. ★★★



Tip rocket installation shows absence of bulk or drag-producing elements. Since thrust is derived from escaping steam, there is no flame and only a slight noise can be heard while ROR system is in use. Button turns it on and off.

Dallas Program for NBAA

400 business fliers expected for annual convention October 27-29

THE Seventh Annual Meeting and Forum of the National Business Aircraft Association will be held in Dallas October 27-29 at the Hotel Adolphus with 375 to 400 business plane owners, pilots and crew members expected to attend. A full program of informative discussions and presentations has been arranged, to be rounded out by numerous entertainment events to give executive airmen a big Texas welcome throughout the three-day session.

Tom Neyland, Taylor Oil and Gas pilot, and regional chairman of NBAA, has urged all business fliers to attend the sessions whether they are members or not. The Association not only invites new membership applications but believes its sessions are of importance to business flying as a whole.

Nationally-recognized authorities will take part in discussions of safety, equipment developments and standards, pilot proficiency, weather, communications and aircraft designs.

A special feature will be an elaborate display of new business planes at Love Field. The entire range of aircraft will be represented — from Mooney mites to Convairs and including the first new-production 4-engine executive airplane, the de Havilland Heron. Speakers on the program include Robert Ramspeck, vice president of Eastern Air Lines in charge of Washington affairs, and Seaborn P. Collins, Jr., recently elected national commander of the American Legion. Collins was a pre-war flight instructor and war-time ferry and Hump pilot. He now uses two private planes in his business at Las Cruces, New Mexico, where he is engaged in real estate, insurance, lumber and general contracting activities.

One of the convention's highlights will be presentation of annual awards to NBAA members with outstanding safety records. The organization recognizes its responsibility for encouraging safety in the business aircraft field and last year made awards to 16 member companies which had operated aircraft one million or more consecutive plane miles each without accident involving damage or injury. The planes of these sixteen firms flew a total of 28,832,086 accident-free plane miles. Additionally, 41 pilots were given awards for each having flown business aircraft 500,000 or more accident-free plane miles. They represented an aggregate of more than 21,000,000 accident-free aircraft miles flown.

Tom Neyland, chief pilot of Taylor Oil and Gas Company, is Southwest regional chairman of the National Business Aircraft Association. He urges all business fliers to attend the Dallas convention Oct. 27-29. —(Southwest Airmotive Photo.)

Entertainment events crowd the program arranged for the convention. These include a first nighter cocktail party with Temco as host; a Texas breakfast with Convair and their representative, Long and Parker; a North American Insurance lunch; a "cowboy stomp" dinner and party sponsored by leading aviation concerns including as of Sept. 29, Bendix, Aero Design and Engineering, Chance Vought, Air Associates, Collins Radio, Executive Aircraft Service, Magnolia Petroleum, Lear Radio, Beech Aircraft, ARC Radio, Beech Distributor Jim Gray, Dallas Aero, Narco Radio, Humble Oil and others; and a breakfast in bed by Southwestern Airmotive. Blue jeans will be furnished by Dallas Airmotive.

Cole Morrow, J. I. Case, Racine, Wisconsin, is chairman of NBAA. Vice chairman is Henry Boggess, Sinclair Oil, Tulsa, and directors include: E. T. Spetnagel, Wolfe Industries, Columbus, Ohio; W. B. Belden, Republic Steel, Cleveland; Joseph Burns, Fuller Brush, Hartford, Conn.; Girard J. Eger, International Harvester, Chicago; Walter C. Pague, Armco Steel, Middletown, Ohio; Ralph E. Piper,

(Continued on page 54)

FOR COMPLETE AVIATION RADIO SYSTEMS

...look to the leader

AIRCRAFT NAVIGATION AND

VOR / ILS

Complete use of every present VHF navigational facility . . . using only one indicator.

Below on the left you see the famous Bendix Omni-mag. It's a 4-in-one indicator . . . VOR, ILS, magnetic heading and marker. The new MN-85 Navigational system provides tone localizer (ILS) Visual Omni Range (VOR) Visual-Aural Range (VAR) and communication reception on 280 crystal controlled channels.

The new Bendix 20-channel Glide Slope Receiver provides the final link for complete ILS operation.

When used with Bendix VOR equipment, both localizer and glide slope information is shown on a single indicator.

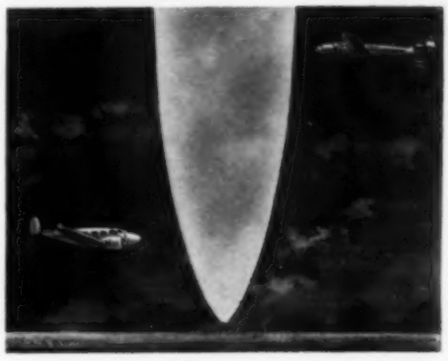
A single finger-tip control provides simultaneous selection of VOR and ILS channels.

OMNI-MAG

MN-97

MN-85

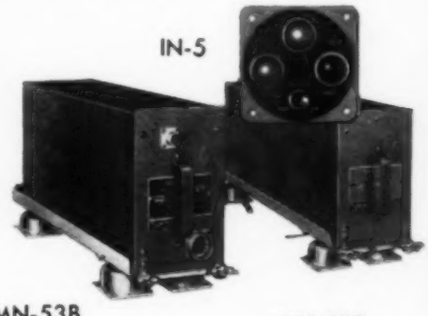
MN-100



MARKER BEACON

The Bendix 3-light system is the standard on all U.S. airlines. Accurate . . . simple . . . trouble free. High and low sensitivity settings. No relays. No contacts to wear out.

IN-5



MN-53B

MN-61B

DME

Distance Measuring Equipment electronically computes distance of an aircraft from a combined DME/VOR station.

In the Bendix DME system, the distance is shown directly in miles on an easily read, full faced indicator. The indicator can be set from 0 to 40 or from 0 to 200 miles.

It is now possible with the Bendix system to fly coast to coast, from Canada to Mexico on fully commissioned DME ground stations. With DME more accurate ETA's can be established . . . unmarked airways can be flown . . . instrument approaches can be made to infrequently used fields under IFR conditions.

THE DME ANTENNA

ANT - 5A

DME 5A

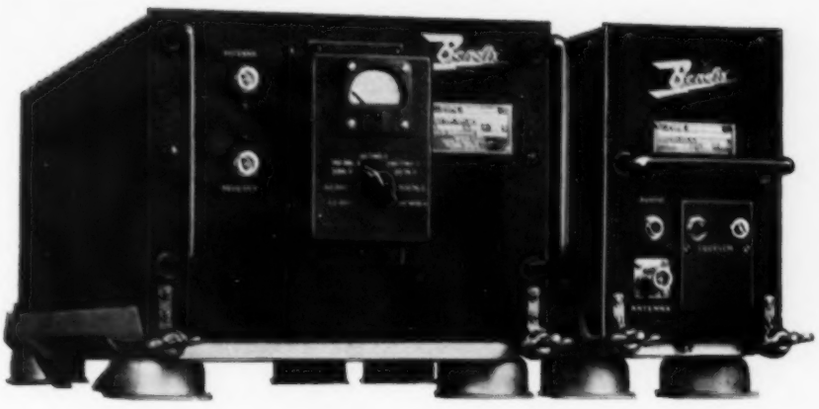
DMI-5A

* REG. U. S. PAT. OFF.

Bendix Radio

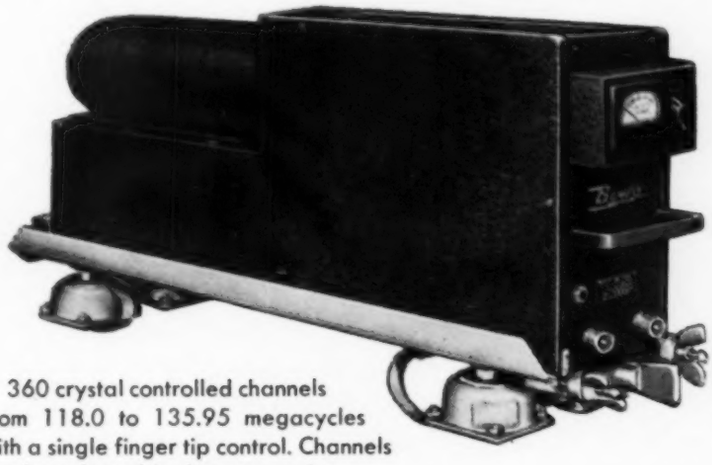
DIVISION OF BENDIX AVIATION CORPORATION
BALTIMORE 4, MARYLAND, U. S. A.

COMMUNICATION SYSTEMS



TA-18BB RA-18C

VHF COMMUNICATIONS



TA-20

360 crystal controlled channels from 118.0 to 135.95 megacycles with a single finger tip control. Channels can be selected in three seconds.

50 kilocycle channel spacing provides maximum use of available channels. Eliminates possibility of obsolescence for years to come.

The TA-18 transmitter power output is 35 watts nominal. The TA-20 (½ ATR) provides 25 watts output. Conservative design results in long, trouble free operation.

Receiver weighs only 17.5 pounds, less power supply.

A tuning meter and switch on the front panel of the transmitters permit instant checking of major circuits.

CONTROL PANEL

Single Bendix control panel used to select transmitter and receiver channels simultaneously. The DA-NITE panel provides white numerals during day... red numerals at night.

SEL-18

SELECTIVE CALLING

The Bendix SELCAL system is designed to provide the pilot with visual or aural notification of incoming radio calls. Over 1400 interference free tone combinations... pre-selected frequencies. Airborne and ground equipment. Permits pilot to fly long hours without wearing headphones or to monitor both ATC and his company channel simultaneously.

OSC - 3 A

SCL - 3 A

VHF GROUND STATION

An economical, fixed station single channel transmitter and receiver for ground to air and from point to point service. Transmitter provides 50 watts output from 108.0 to 135.95 mc.

Transmitter or receiver is available separately for installation in existing systems.

WEST COAST SALES
Bendix Radio
10500 Magnolia Blvd.
North Hollywood, Calif.

SOUTHWEST SALES
Bendix Radio
3300 Love Field Drive
Dallas 9, Texas

EXPORT SALES
Bendix International
205 E. 42nd Street
New York 17, N. Y.

CANADA
Aviation Electric Ltd.
200 Laurentien Blvd.
Montreal P.Q., Canada

. . . and now Bendix AIRBORNE RADAR

The Bendix RDR-1 Airborne Radar System has been developed to provide commercial and executive aircraft with a practical and dependable means to evaluate weather conditions.

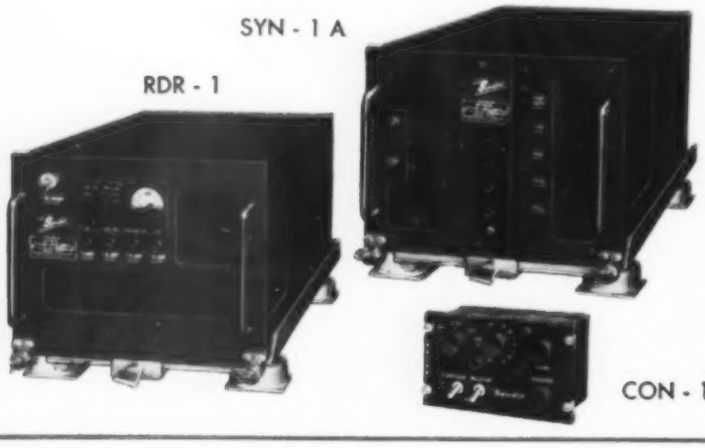
The RDR-1 Radar System also has provision for radar beacon navigation and terrain mapping. It has a maximum range of 150 miles.

Iso—echo circuitry enables pilots to determine the exact center of approaching turbulent areas. Small angular course deviation will enable pilot to traverse storm areas with a minimum of turbulance thus preventing damage to ships and increasing passenger comfort.

The entire system weighs less than 150 pounds.

SYN - 1 A

RDR - 1



ANT - 1 A

PPI - 1 A

CON - 1 A

FLUSH MOUNTED ADF LOOP ANTENNA

Completely eliminates drag. It's designed to work with all Bendix ADF equipment. Equal or greater sensitivity than present day loops. Better anti-static performance.

LPA-70

NEW ADF RECEIVER

ADF-70

Operates from AC or DC power supply. Fits in standard ½ ATR rack. Provides system bearing accuracy of plus or minus 3 degrees throughout frequency range of 90 to 1750 kc.

New electrically operated remote tuning system permits instant selection of any station.

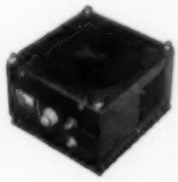
AUDIO

Complete audio equipment for paging, announcing, interphone and passenger entertainment systems for airlines and executive aircraft.

A high fidelity audio amplifier provides 20 watts output with very low distortion. Available for use with dynamic or carbon microphones.

A single package cockpit loudspeaker and amplifier eliminates need for constant pilot and crew use of headphones. Provides 4-watts of audio output with less than 10% distortion.

MI-36



MI-51

Bendix MOST TRUSTED NAME IN Radio

A few of the business planes which brought pilots to Love Field for the Pratt & Whitney-Southwest Airmotive maintenance forum.

Forum for Maintenance

APPROXIMATELY 200 operators of Pratt & Whitney aircraft engines from 16 states and foreign countries attended the fifth annual maintenance and operations clinic sponsored and conducted jointly by Pratt & Whitney and its distributor, Southwest Airmotive, at Love Field in Dallas last month.

It was a one-day program, with the morning devoted to discussions by Pratt & Whitney experts on maintenance and operation. Pratt & Whitney was host at a noon lunch served ranch-style and Southwest Airmotive conducted a tour through its recently expanded engine overhaul shop and production line, where latest techniques were viewed. An open forum took place in the afternoon with pilots and crew members asking questions of the experts. Southwest was host at night with an elaborate hangar-flying party in the big hangar for visiting planes. This show included a production number staged by Al Harting, public relations director, and featuring the girls made famous in aviation through Southwest's unique advertising series.

In connection with the engine discussions and forum, a United Aircraft Corporation movie on the history of flight was shown. ★ ★ ★

These scenes show some of the attendance at the Pratt & Whitney-Southwest Airmotive forum. In photo at bottom left, from left to right, are William Doolittle of Pratt & Whitney's school; A. E. Hale, P. & W. airlines engineer; Morris Triggs, P. & W. liaison representative; Winston Castleberry, Southwest Airmotive vice president, and Joe McCormack, P. & W. field service man. Left to right in the group about the engine are some executive pilots—Ralph Eichmier, Husky Oil Co., Cody, Wyo.; James Hall, Creole Petroleum, Venezuela; H. B. Saenz and C. Reyes, San Francisco Mines, Chihuahua, Mexico; V. (Red) Irwin, Mene Grande Oil Co., Venezuela, and Jack Turner, Husky Oil, Cody, Wyo. —(FLIGHT MAGAZINE Photos.)

New plant of the Lear, Inc., LearCal Division in Santa Monica is shown at top, with its electronic assembly department in the center photo. Ribbon-cutting ceremonies for the opening last month are pictured in the bottom scene. Left to right are Santa Monica Mayor Tom McDermott; W. P. Lear, founder and chairman; Miss Santa Monica Industry; Bill Lear, Jr.; R. M. Mock, president and George Otis, vice president and LearCal manager.

New Plant For Lear

THE "house that Lear built" is getting bigger all the time, the latest expansion being a new 52,000-sq. ft. building in Santa Monica, California, for administrative and manufacturing facilities of the LearCal Division of Lear, Inc., and for the personnel and laboratories of its Research and Development Division.

Costing $350,000, the new facility is across from the Santa Monica airport and is located at 3171 S. Bundy Drive. More than 3,000 visitors were escorted through the new plant during a 7-hr. open house celebration during which William P. Lear, founder and chairman, was host to the public, employes, distributors and dealers and the military services. George Otis is vice president and general manager of the LearCal division.

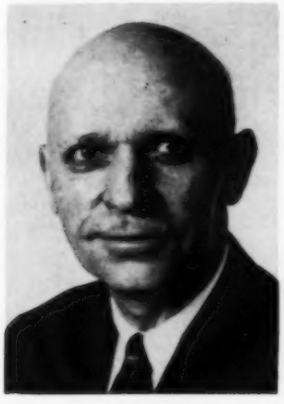
The new building brings to 363,400 sq. ft. the total plant space occupied by Lear, Inc. It was designed by the architectural firm of Pereira and Luckman and built by McIsaac and Menke, contractors.

Growth of the company is such that substantial new additions to the new plant are already scheduled. A 40,000-sq. ft. hangar building is to be opened soon on leased property on the Santa Monica airport for the firm's Lear Aircraft Service Division. In Grand Rapids, Michigan, a large tract of land has been purchased at the Kent County Airport as a site for a new plant housing the Grand Rapids Division, presently located in the downtown area.

Founded in 1930, Lear, Inc., has five divisions with headquarters in the airport administration building at Santa Monica. The LearCal Division in California conducts research and development for the military on automatic flight controls and servo-mechanisms and is devoted to the design and quantity production of a complete line of commercial aircraft radio communications and navigation equipment. These include the L-2 autopilot, VHF and LF communications systems, omnirange devices, automatic direction finders and a complete range of radio accessories. It also produces L-5 autopilot accessories such as the automatic approach coupler and automatic altitude control. ★ ★ ★

"The New Look" AT DALLAS AERO SERVICE

E. W. BAILEY
General Manager



BYRON POST
Superintendent of Production and Service

RAY BECK
Supervisor of Aircraft Overhaul

ROY FISHER
Supervisor of Engine Overhaul

A New Team for a Pioneer Aviation Organization

B. B. HALEY
Supervisor of Service

Dallas Aero Service, one of the nation's oldest and most experienced aviation concerns, has taken on a "new look" with a new, top team of management personnel. Headed by E. W. Bailey, former Secretary-Treasurer of Pioneer Air Lines for almost nine years, as General Manager, the new team at Dallas Aero consists of Byron Post (20 years' experience), Ray Beck (12 years' experience), Roy Fisher (20 years' experience), B. B. Haley (14 years' experience), and George McKinley (11 years' experience).

Aircraft owners and operators over the nation know they can rely on the skill and honesty of the new team at Dallas Aero Service.

GEORGE McKINLEY
Supervisor of Instrument Shops

In Dallas — It's Dallas Aero Service . . .

- MODIFICATION
- REPAIR
- OVERHALL
- ACCESSORIES
- RADIO
- INSTRUMENTS
- AIRCRAFT
- ENGINES
- SERVICING

DALLAS AERO SERVICE

PHONE DI-2641 • 3300 LOVE FIELD DRIVE • DALLAS 9, TEXAS

COMPLETE ONE-STOP SERVICE ON CONVENIENT LOVE FIELD

Motorists: here's proof...

Gulf's cleaner-burning, super-refined gasoline solves today's No. 1 engine problem!

This lamp is burning the "DIRTY-BURNING TAIL-END" of gasoline which GULF refines out
This lamp is burning NEW SUPER-REFINED GULF NO-NOX, the cleaner-burning super-fuel

Laboratory tests promised...

. . . these *immediate* and *lasting* benefits from this new, super-refined fuel:

More complete engine protection than from the so-called "miracle-additive" gasolines. Why? Because Gulf refines *out* the "dirty-burning tail-end" of gasoline (the No. 1 troublemaker in high-compression engines)—and then treats this new Super-Refined NO-NOX to give it a *complete range of protective properties*. It protects *every* part it touches against carbon, rust, gum.

Extra gas mileage in all your everyday, short-trip, stop-and-go driving.

No knock, no pre-ignition. Why? Because the anti-knock power of new Gulf NO-NOX has been stepped up to an all-time high.

Stall-proof smoothness. Instant *starts*, too—and fast, fuel-saving warm-up.

That's why new Super-Refined Gulf NO-NOX gives your engine more power-with-protection than you've ever known.

Road tests proved...

These cars, powered by New Gulf No-Nox, actually performed better than new . . . after 15,000 miles!

True! After 15,000 miles per car—covering all conditions of city and country driving—Gulf test cars showed these results:

- Higher-than-new horsepower!
- Better-than-new on gasoline mileage!
- And not a single trace of carbon knock or pre-ignition at any time—even on the steepest mountain grades!

COMPLETELY NEW! SUPER-REFINED

New Gulf No-Nox

THE HIGH-EFFICIENCY GASOLINE

GULF

Always finest and fastest . . .

Now THE WORLD'S CHAMPION LONG-RANGE, NON-STOP AIRLINER

New DOUGLAS DC-7C

Adds 1000 miles to non-stop flight limits . . .

Adds up to 70 mph to cruising speed

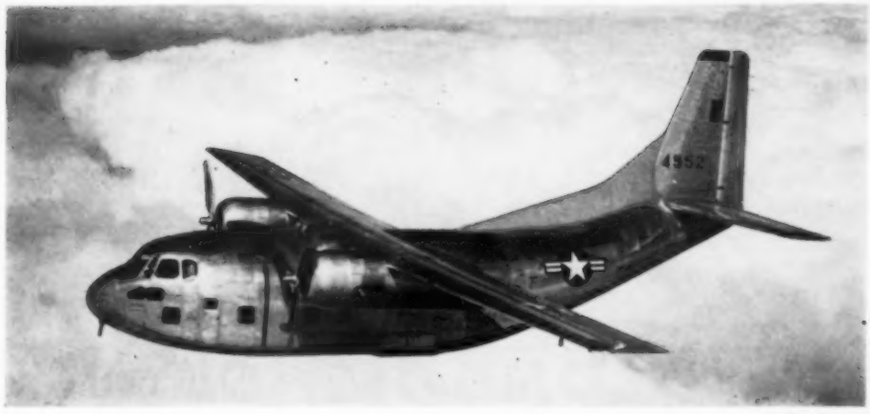
Here is the first truly Intercontinental passenger airplane. This Douglas distance champion will carry competitive payloads up to 5000 miles non-stop . . . makes possible unrefueled flights like those illustrated . . . and because of its range and speed, promises to revolutionize air travel and airline operations between continents.

Longer wings to carry more fuel also allow engines to be moved further away from the cabin, making the DC-7C even more *quiet* and *comfortable*.

Already ordered in quantity by Pan American World Airways, these new model Douglas transports are scheduled to begin intercontinental service in 1956.

DOUGLAS

Twice as many people fly Douglas as all other airplanes <u>combined</u>



FIRST FAIRCHILD PRODUCTION-MODEL C-123B AVITRUC for the Air Force, designed by Chase Aircraft, flew recently and is shown at right. It is powered by two Pratt & Whitney R-2800 engines and has a payload of 16,000 lbs. at a 54,000-lb. gross weight. Fairchild is producing the combat cargo transport at Hagerstown, Maryland.
—(Fairchild Photo.)

AIR REPORT

(Continued from page 5)

HELICOPTER PASSENGER SCHEDULES will be started during the first two weeks in November by Los Angeles Airways, which has four new Sikorsky S-55's with passenger interiors.

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS voted recently to hold its next annual meeting in Dallas on dates to be selected later.

PROFESSIONAL STANDARDS FOR AIRPORT MANAGERS AND SUPERVISORS have been adopted by the American Association of Airport Executives and professional membership from now on will be by examination only. The group now has 291 executive members eligible to use the initials "AAE" after their names, these standing for "accredited airport executive" as conferred by the association. Dr. Leslie A. Bryan, University of Illinois aviation institute director, is chairman of the AAAE's committee on standards. Employers of airport managers and supervisors are being urged by AAAE to require the accredited rating as a job prerequisite

NATA LEADERS AT VIRGINIA BEACH, Virginia, regional meeting last month are shown above. Left to right are Tom Ferguson of Albany, Ga., NATA vice president; Charlie Culbertson, South Carolina aeronautics commission director; John T. Griffin, NATA vice president, and Bob Northington, NATA past president. Operators from Georgia, Virginia and North and South Carolina attended.
—(NATA Photo.)

EXECUTIVE VERSIONS OF NEW FOKKER F27 TWIN TURBOPROP TRANSPORT, tentatively estimated to sell for less than $500,000, will probably be available late next year or in early 1956. Fairchild is the U. S. sales agent and is licensed to manufacture the new Fokker, two of which are nearing completion in Holland for first flights early in 1955 and CAA certification. Jim Ray, well-known airline consultant in Washington and representing Fairchild in sales of the Fokker, and H. V. B. Burgerhout, Fokker's technical representative, are now touring the U. S. and showing a large cutaway model of the airplane to officials of local service airlines. It is a pressurized 32-36-passenger high-wing transport with tricycle landing gear and is powered by two Rolls-Royce Dart turboprop engines rated at 1,550 hp. each plus 350 lbs. of jet thurst. Gross weight is 34,200 lbs. and empty weight is less than 20,000 lbs. The executive version is expected to cruise at more than 265 mph. at 20,000 ft., with a fuel consumption equivalent to about 1.67 miles per gal. of kerosine. Range for this version would be in excess of 1,500 miles.

THREE NEW BEECH D18S TRANSPORTS form the restoration of the Chilean Navy's air force, which will use them for transport, patrol and reconnaissance. Delivery was made late in September.

PERFORMANCE DETAILS OF THE CHANCE VOUGHT F7U-3 CUTLASS now on active duty with the U. S. Fleet include 13,000-fpm. rate of climb. Combat ceiling is above 45,000 ft. and top speed is in excess of 650 mph. Cutlass is powered by two Westinghouse J-46 engines rated at nearly 6,000 lbs. of thrust each but equipped with afterburners which almost double this rating. Operation at low altitude is possible on one engine for fuel economy and the F7U-3 can make a normal carrier landing on one engine and still take a wave-off for a go-around on one engine. Armament includes 20-mm. cannon and a belly pack of air-to-air rockets. It also carries bombs and other bomb-type weapons. Two independent hydraulic power control systems connected in tandem operate the ailavators, which have no direct mechanical linkage with the cockpit. An attack version, the A2U-1, can be launched from shipboard catapults with 9,000 lbs. of bombs.

SEVENTEEN MORE 4-ENGINE DOUGLAS TRANSPORTS have been ordered by United Air Lines at a cost of $22,300,000. The order includes two 58-passenger DC-7's, 10 58-passenger DC-6B's and 5 15-ton-capacity DC-6A cargo transports. With this addition, the United fleet will consist of 200 transports, as follows: 79 DC-6 series; 55 Convairs; 27 DC-7's; 21 DC-4's and 18 DC-3's.

AMERICAN AIRLINES ENGINEERS HAVE SELECTED THE BY-PASS ENGINE as the best solution for the long-range jet transport problems in a challenge to the U. S. industry to develop such an engine for airline use. The by-pass is a jet engine which extracts a portion of its useful energy to drive an extra large compressor at the entry. This excess air is ducted around the outside of the hot part of the engine for injection into the exhaust to mix with the hot jet. M. G. (Dan) Beard, assistant vice president in charge of research and development, said this method of reducing specific fuel consumption at high speeds and increasing take-off thrust will make long-range jet transports drastically smaller and drastically more economical.

A C-BAND VERSION OF THE BENDIX RDR-1 AIRBORNE RADAR SYSTEM has been ordered by United Air Lines for evaluation. United plans a $4,000,000 airborne radar installation program and will equip 150 of its airliners with C-band systems upon completion of its evaluation program. United regards airborne radar as one of the decade's greatest advances. By adding the C-band type to its line, Bendix now offers both it and the X-band system to commercial aircraft

(Continued on page 46)

On Ground-time

There is a wide margin between "ON GROUND TIME" and "ON TIME." Alamo Aviation at San Antonio, Texas, feels a great responsibility toward assisting today's busy flying executives in maintaining important itineraries "on time."

Day and Night the spacious facilities of Alamo Aviation are prepared to serve your immediate requirements. Our competent staff is qualified to handle any problem in minimum time and in the most efficient manner possible.

Many aircraft owners who base several hundred miles
from San Antonio are bringing their aircraft to Alamo
Aviation for 100-hour checks and major overhauls.
There is a definite reason—a reason that means less
"on ground time" and **"on time" every time.**

ALAMO AVIATION, INC.

Municipal Airport — San Antonio, Texas

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North, South, East or West . . . you can always place your confidence where you see the sign CERTIFIED BEECHCRAFT SERVICE. Modern facilities, experienced personnel and factory authorized parts offer assurance of service satisfaction. On your next trip visit the outstanding firms listed below.

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ALAMO AVIATION, INC.
Municipal Airport
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ANDERSON AIR ACTIVITIES
General Mitchell Field, Milwaukee, Wisc.
Truax Field, Madison, Wisc.

ATLANTIC AVIATON CORP.
Teterboro Airport, (25 minutes from Times Square)
Teterboro, New Jersey
Logan Airport, East Boston, Mass.

BUTLER CO., AVIATION DIVISION
Municipal Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

HUNTER FLYING SERVICE, INC.
Hunter Field, Cedar Rapids, Iowa

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Cuddihy Field, P. O. Box 556,
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ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington, Delaware

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J. D. REED CO., INC.
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Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
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WINGS, INCORPORATED
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Philadelphia International Airport, Philadelphia, Pa.

"Psychic Income" for Executives

Providing executives with luxuriously comfortable, reliable transportation – available at any time in any direction – making it possible for them to get their work done in half the time, and without fatigue, *pays dividends* to any corporate activity, represents real "psychic income" for the men.

In the quiet, spacious, comfortable cabin of today's new Super 18 Beechcraft, industrial leaders of America have at their command the ultimate in business transportation – an executive transport that cruises at 215 miles an hour.

Men of decision have *more* time for work – *more* time for pleasure, too. They reduce travel time as much as 75 per cent. They visit distant plants and customers more often and still have time for important home office activities. Their Beechcrafts are the Air Fleet of American Business.

Beechcraft

Beech Aircraft Corporation,
Wichita, Kansas, U. S. A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

AIR REPORT

(Continued from page 42)

operators. Bendix has orders from 10 different sources for the X-band system.

BACK ISSUES OF AVIATION MAGAZINES are needed by the National Air Museum to complete partial collections on hand, according to Associate Curator Robert C. Strobell. His "want list" and a list of duplicate issues available for exchange can be obtained on request to Strobell at Smithsonian Institution, National Air Museum, Washington 25, D. C.

AN ADDITIONAL F-100 SUPER SABRE ORDER IN EXCESS OF $100,000,000 has been received by North American Aviation from the Air Force and the North American plant at Columbus, Ohio, will produce the supersonic fighter as a secondary source of supply. The F-100 is powered by a Pratt & Whitney J-57-7 with afterburner.

A FAIRCHILD J-44 JET ENGINE is being used for assist power in an experimental installation atop the cabin of a Fairchild C-82 Packet. The J-44, designed for target drones and guided missiles, develops 1,000 lbs. of thrust and tests indicate it will reduce take-off distance and permit two to three tons of additional take-off weight. The J-44 is only 22 ins. in diameter and 72 ins. long. Its air intake may be closed to reduce drag when it is not in use.

FIRST INSTALLATION OF A WHITING LOADAIR SYSTEM IN THIS COUNTRY will be made at Idlewild Airport in New York adjacent to the American Airlines passenger lobby at Gate 4 by Whiting Corp., as an experiment. Successfully tried in South America, the Loadair uses cars set flush with the ramp pavement with tracks extending out from a dock. An arriving plane is taxied onto these cars, the wheels are mechanically locked in place, and the cars move the transport sideways to and from the dock at the terminal.

AIRLINES AND MILITARY AIR SERVICES began using the nautical mile as a government requirement on October 1. Private and business planes may use either nautical or statute miles according to preference. All normal radio communications relating to speed and distance values by CAA facilities are now in terms of knots and nautical miles except visibility, which is in statute miles. A nautical mile is 6,080 ft. in length, whereas a statute mile is 5,280 ft. To convert distance into nautical mileage, divide statute miles by 1.15 and to find distance in statute miles, multiply nautical miles by 1.15. Miles per hour divided by 1.15 gives you knots (nautical miles per hour), and knots multiplied by 1.15 gives miles per hour. Complete details are available on page 26 of the September 7, 1954, issue of Airman's Guide.

NATIONAL AVIATION TRADES ASSOCIATION'S annual convention will be held in Miami Beach, Florida, November 8-10, at the Biltmore Terrace Hotel. Charles A. Parker, executive director, said a large attendance is expected. Hotel rates will run $8 for singles and not over $12 for doubles, he said.

MOONEY AIRCRAFT WILL RESUME FLYING ITS 4-PL. MODEL 20 on October 22 at Kerrville, Texas, where it is producing the single-seat Mooney 18 Mite at a steady pace of 2 a week, according to W. W. Evans, general manager.

BILL LEAR, JR., has joined Howard Aero Service, Inc., at International Airport, San Antonio, Texas, as sales manager of Lear radio and autopilots, according to Ed Swearingen, vice president.

CAB HAS RECOGNIZED THE USE OF MARTIN 202 AIRLINERS on the routes of Southwest Airways for both cost and investment return purposes. John H. Connelly, Southwest president, says a new CAB order "completely substantiates the decision of Southwest to utilize this postwar equipment." He said passenger load factors have increased sharply since Southwest placed Martins in service two years ago. Connelly also reported a record 67% passenger load factor for August, 1954, and a $56,000 operating profit for the month.

AN EXECUTIVE CONVAIR 340 FOR THE KING OF SAUDI ARABIA has been delivered with a special interior installed by Temco Aircraft Corp., of Dallas and Greenville. Half of the cabin is a private compartment for the king and is completely air-conditioned with an executive office, a roomette with sleeping accommodations, and a lavatory and shower. In it is a "disappearing" table which raises hydraulically out of the carpeted floor.

EXECUTIVE VERSIONS OF THE TURBOPROP VICKERS VISCOUNT will include a custom model for the president of India and VIP version for the Canadian Department of Transport. A check with Vickers by FLIGHT MAGAZINE shows U. S. inquiries have been made about executive Viscounts but that no order has been received from the U. S. Total Viscount orders as of last month were 154 airplanes, practically all of them from airlines.

LYCOMING'S NEW VICE PRESIDENT AND GENERAL SALES MANAGER is H. Webster Crum, sales manager for Goodyear Aircraft Corporation since 1947. He will be responsible for sales of Lycoming military and industrial products manu-

190-Mile Goal Flight by Sailplane on CAA Flight Plan

LAST month in Austin, Texas, Dave Malkemus, a chemical engineer, took off in his Pratt-Read sailplane and filed a flight plan for Dallas, naming Love Field as his destination 190 miles away. It was 11:20 a. m. when he released his tow at 3,500-ft. altitude and his estimated time of arrival was "between 5 and 6 p. m." with the flight to be made "at varying altitudes."

"The usual south wind was gentle but on my tail," Malkemus reported later. "After anxious moments over Round Rock at 2,000 ft., thin, scattered clouds became thicker and more numerous and the going became easier. The Waco CAA range station 100 miles out was contacted by radio at 6,000 ft. and at 2 p. m. when over the city. Two hours later near Dallas at 7,000 ft., it was evident the goal was in the bag so I shifted my course to include three or four turns over Grand Prairie where an air show was in progress. A few minutes later over Love Field at 6,500 ft., clouds were still popping and it was almost a shame to land, which I did at 4:20 p. m.

"The surprise of the CAA tower was small compared to that of the Dallas radio range lads when told that Glider N-68944 from Austin was on the field and wanted to close out its flight plan. I certainly appreciated all the help the CAA people gave me with this flight plan — it was easy to file and extremely useful."

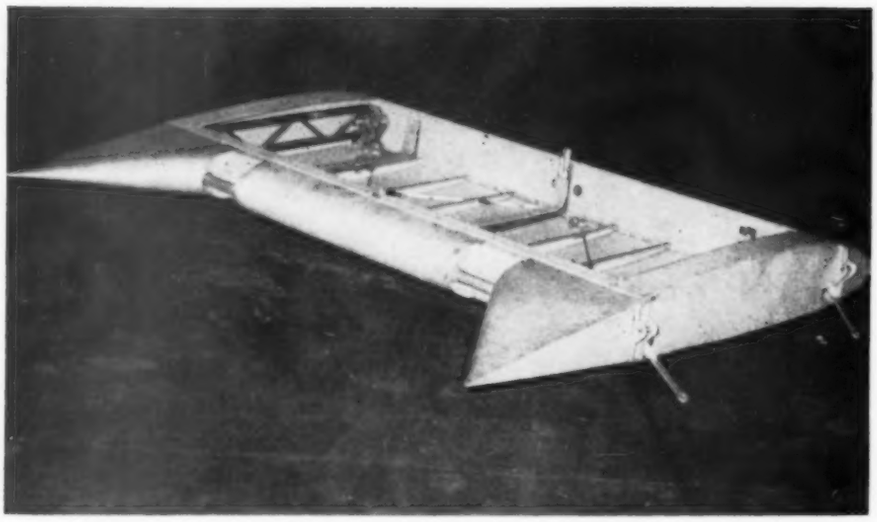
Malkemus used the goal flight for an application to the Soaring Society of America for a Golden C award — it is probably the first such application based on a flight plan filed and closed with CAA. The flight was his fourth attempt at such a goal flight since 1950. ★ ★ ★

Pilot Dave Malkemus and Son

A Tall Texas Welcome to NBAA Members

Dallas, which is rapidly becoming a leader in business aviation, is delighted to be host this week to an organization devoted to the progressive development of business flying. Magnolia men and women, representing our home offices in downtown Dallas, want to be among the first to welcome your membership to the Southwest; to hope that your Dallas sessions will be the best ever; and that you will stop in and see us if there is anything we can do to make your stay here more pleasant and comfortable.

MAGNOLIA PETROLEUM COMPANY



METAL CENTER WING SECTION FOR STEARMAN Series 75 is manufactured from CAA-approved drawings by Clark Manufacturing Co., Marshall, Texas, to replace the original wood and fabric section. Units have been in use for two years in several states. All parts are phosphate treated and dipped in zinc chromate primer before assembly. It is available with standard or modified rear fairing.

factured at Stratford, Conn., and Williamsport, Pa.

HERSCHEL A. WOLF, formerly supervisor of aircraft radio for American Airlines, has been named assistant manager of aviation sales for Bendix Radio Communications Division of Bendix Aviation Corporation, according to Clarence I. Rice, sales manager.

COLONEL ARTHUR F. MEREWETHER, superintendent of weather services of American Airlines, has been named president of the Air Transport Association's meteorological committee for the coming year. He is also president of the American Meteorological Society.

RAPID INCREASES IN PRIVATE PLANE TOURISTS VISITING NASSAU IN THE BAHAMAS OFF FLORIDA are reported by Civil Aviation Director Hartis H. Thompson, who says private air tourist traffic in 1954 will double that of 1953. In the first half of 1954, 698 visiting private planes were recorded at Oakes Field in Nassau, as compared to only 445 for the same 1953 period. While Oakes Field is the only tower-controlled airport in the Bahamas, several good strips serve private fliers. The best is a 3,800-ft. strip at Rock Sound, Eleuthera, which is being extended and resurfaced. Improvements are planned for the 5,000-ft. strip at West End, Grand Bahamas, and a 3,000-ft. strip at Spanish Cay, Abaco, can be used for an emergency landing. A good 5,000-ft. strip provides access to the fishing and hunting area at Fresh Lake in the center of Andros Island and the owners of Walker's Cay, north of Grand Bahamas, plan a strip for twin-engine service between this resort and Palm Beach. A number of good strips have been established by the U. S. Air Force in the islands but are for emergency use only. These are at James Cistern, Eleuthera; San Salvador; Great Inagua; Mayaguana and Gold Rock, Grand Bahama.

A NEW COWL MOUNTING CUSHION FOR TWIN BEECHCRAFT has been developed by Zelair Corp., Memorial Airport, Defiance, Ohio, and is said to eliminate cracked engine cowlings. It is the "Flex-Wich," molded from a flexible rubber material to form a "sandwich" between the engine cowl support brackets and the cylinder cowling support brackets. This permits the assembly to float on a resilient cushion.

LOUISIANA'S ALL-OUT AIRMARKING CAMPAIGN to have every town with an available roof airmarked is paying off with bright-colored air markers appearing all over the state. General T. B. Herndon, state aeronautics chief, said the markers have been contracted at a price of $34.50 per marker. They are of the CAA standard type. "This is an important phase in our state's air navigation development to make Louisiana the safest state possible over which to fly."

ELIMINATION OF DRAG on Lockheed Lodestars is accomplished by Mallard Industries, Bridgeport Municipal Airport, Stratford, Conn., in the installation of ADF loops in the nose section with a formed plexiglass cover. Note ILS antenna also beneath the glass. This installation is on Kollsman Instrument Corporation's Lockheed, flown by Capt. Al Zotack.

A NEW $1,329,000 TERMINAL BUILDING AND 2,500-FT. RUNWAY EXTENSION have been opened at the Charlotte, North Carolina, Municipal Airport.

FAIRCHILD AIRCRAFT HAS RECEIVED a U. S. AIR FORCE CONTRACT to modernize 305 more C-119G Flying Boxcars now in service with troop carrier units. Its first modification contract was for 53 aircraft. It has also received an order for modifying a number of C-119's used by the Royal Canadian Air Force. New installations include corotational nose gear, emergency escape chutes, emergency air brake systems and ventral fins on the tail booms. Other modifications include fuselage beefing, auxiliary power unit improvement and installation of an elevator gust-lock emergency valve.

SOARING SOCIETY OF AMERICA has elected Lt. Col. Floyd J. Sweet, USAF, as president, succeeding Jon D. Carsey of Dallas. Sweet has been active in gliding and soaring since 1929 when he built and flew his first primary glider at Elmira, N. Y. Other 1954-55 officers, all re-elected, are: Dr. Wolfgang Klemperer, Los Angeles, honorary vice president; Ralph S. Barnaby, Philadelphia, east coast vice president; Ted Nelson, San Leandro, Calif., west coast vice president; E. J. Reeves, Dallas, treasurer, and Paul A. Schweizer, Elmira, secretary.

SEVEN COMMERCIAL AND GOVERNMENT MODEL 47G HELICOPTER SALES were reported last month by Bell Aircraft at Ft. Worth. Two were in France, one for the Navy and the other for powerline patrol of a nationalized electric utility. The Royal Norwegian Air Force ordered its 9th Model 47. Two, complete with dust and spray kits, were destined for the Venezuelan agriculture ministry's pest control project, and one each went to Keystone Helicopters of Philadelphia and Okanagan Helicopters of Vancouver, B. C.

MENASCO MANUFACTURING COMPANY of Burbank has received orders from Boeing Airplane Company for nose landing gear on the

From Tiny's to Titanic's It's

Dallas Airmotive

CAA Approved Repair Station No. 3822
Class II Power Plant Rating

DALLAS AIRMOTIVE, one of the nation's largest, most modern and complete engine overhaul installations, is equipped and qualified to overhaul any airplane engine in minimum time, with minimum expense, and maximum efficiency and skill.

Engine Overhaul for

Scheduled Airlines
Executive and Private Aircraft
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Also . . .

Parts for P&W — Wright Engines — Complete Plating Facilities

CAPABLE **DEPENDABLE** **RELIABLE**

Dallas Airmotive Inc.
DALLAS TEXAS
6114 Forest Park, Dallas
RELIABLE ENGINES

CAA APPROVED REPAIR STATION NO. 3822 — CLASS II POWER PLANT RATING

HELICOPTERS FOR PUBLIC HEALTH work in Colombia, South America, are three new Hiller 12-B models. They are shown before delivery from the Hiller factory at Palo Alto, California.

new Air Force Model 717 jet tanker-transport.

FUEL COSTING OVER $50,000,000 has been contracted for by United Air Lines from Standard Oil Company of California to cover United's gasoline and petroleum needs on the western section of its system for the next four years. United suppliers for its mid-west and eastern operations are Esso Standard Oil, Gulf Refining, Standard of Ohio, Shell, Phillips Petroleum and Texas Company.

FIRST PROPLESS JET-POWERED EXECUTIVE TRANSPORT IN UNITED STATES may be a staff version of the Martin B-57B twin-jet bomber. A mockup for high USAF officers shows the executive conversion to seat 8 passengers — four in airline-type chairs and four on a couch. An alternative arrangement replaces the couch with two more chairs for more roominess. A small galley, wash basin, toilet and clothes closet are also furnished. Crew and passenger compartments have separate pressurization. In flight, an access door between them would be sealed. The passenger unit has six small windows. The B-57B is a Martin version of the English Electric Company Canberra and cruises at more than 500 mph. Name of the executive version offered to the Air Force for staff transportation is "Courier."

EARL HAYES RENTS CARS AND TRUCKS in Dallas is a newly-appointed licensee in the worldwide Avis Rent-A-Car System. One of four city outlets is at Love Field, which is open 24 hrs. daily. National credit cards are honored.

SELB MANUFACTURING COMPANY of St. Louis, which has produced many difficult aircraft parts contracts for North American Aviation, Boeing, McDonnell, Cessna,

THEIR COUNTRYMAN PIONEERED ROTARY WING FLIGHT: Horacio Saenz Guerrero (left) of the daily newspaper "La Vanguardia" and Alfonso Banda Moras of "Radio Espagne," both of Barcelona, Spain, took their first helicopter flight at the Bell Aircraft Corporation's Fort Worth factory last month, thirty years after the first successful Juan de La Cierva autogiro flight in 1923 near Madrid. The two distinguished journalists are in the United States under State Department auspices. Their itinerary included the National Aircraft Show at Dayton and visits to Texas and West Coast aircraft factories. —(Bell Aircraft Photo.)

Beech and other airframe manufacturers, has elected Harry C. Bass, Jr., as president and announced numerous changes and promotions. They include Del Boyd, vice president; A. H. Bollenbach, secretary-treasurer; Kenneth Hunn, general superintendent; J. E. Jones, methods engineer; R. M. Hanke, production control manager; George Langenckert, quality control manager; James W. Slowe, contracts director and tool procurement; and Lloyd Van Camp, director of contracts division. Van Camp is the newest member of the staff, having many years experience in sales, the last 8 of which were in the aviation industry.

COLLINS MC-101 COMPASS SYSTEM is described in a new brochure now available from Collins Radio Company, Cedar Rapids, Iowa, and its branches and distributors. It is a gyro-stabilized magnetic compass utilizing a directional gyro and a flux detector for long-term heading stability.

NEW SALES DIRECTOR FOR AVIEN, INC., manufacturers of fuel gaging systems and aeronautical instruments, is William O. Boschen, formerly eastern aeronautical sales manager of the Minneapolis-Honeywell Regulator Co.

LOCKHEED AIRCRAFT SERVICE, INC., has contracted for heavy maintenance on 160 C-54 air transports for the Air Materiel Command.

★ ★ ★

CUSTOM RADIO INSTALLATIONS

SALES **SERVICE**

Distributor for

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THE NAME MILLIONS TRUST

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DALLAS AVIONICS, INC.

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PIONEER guide surface personnel parachutes* make the difference . . .

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Under the most trying conditions of jet-speed operation at altitudes from record heights to only 200 feet above the earth, the Pioneer P7-B* and P9-B* Guide Surface Personnel Parachutes have delivered positive performance. The Guide Surface principle, commercially exclusive with Pioneer Parachute Company, lessens opening shock, eliminates oscillation and side glide, gives greater stability by retaining a vertical position in the air enabling the airman to land on his feet.

Patents applied for in U. S. and principal countries throughout the world.

PIONEER PARACHUTE COMPANY, INC.
MANCHESTER, CONNECTICUT, U.S.A.
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Always Ready To Go

Hundreds of Cessna owners all over the country depend on the Authorized Cessna Service Stations listed below for their transportation needs—Authorized Cessna Service is their assurance that business planes are always ready to go, always in top condition for reliability, performance and comfort.

Every Cessna owner is guaranteed three important things by our factory-supervised Cessna Flat Rate Service:

(1) You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all maintenance needs.

(2) You get genuine Cessna parts and factory-trained workmanship.

(3) You save money and time and we stand behind every job for your fullest satisfaction.

To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
Municipal Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport and Love Field
Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero Service, Inc.
San Antonio International Airport
San Antonio, Texas

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
New Municipal Airport
Santa Fe, New Mexico

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

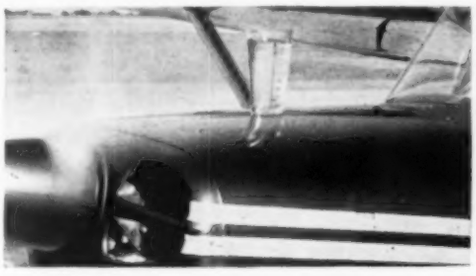
Only the Cessna 170 Offers

All-Metal Construction, World's Safest, Smoothest Landing Gear, 15 Other Exclusive Features For Only $8295

Cessna 170 AIRCRAFT COMPANY

1▶ Smooth 6-Cylinder Power

Cessna is the only airplane in the low-price field that offers you a powerful 6-cylinder, 145 H. P. engine! It cruises over 120 m.p.h. yet it's so smooth, quiet, vibration-free that when the engine is running you can rest a glass of water on the cowling without disturbing the contents!



2▶ The Landing Gear that "Gives"

Cessna's exclusive landing gear flexes outward and upward to absorb the shock of rough fields. It's simple in design, has no moving parts, requires no maintenance!

3▶ Compact Control Panel

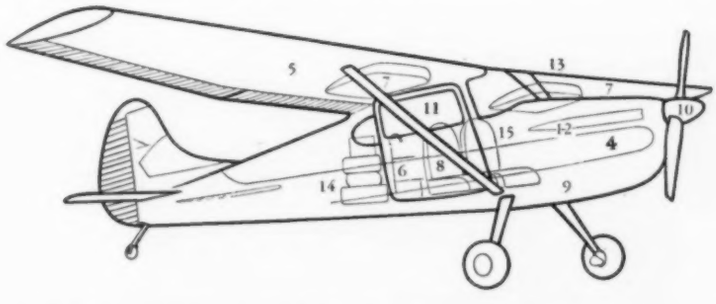
All controls are grouped within handy 6" reach of the pilot's hand. There's a new sloping map compartment, room for 2 extra radios, 8 additional instruments. Attractive non-glare instrument panel is evenly illuminated by dual non-reflecting lights.

All-Metal—All Beauty

With minimum care, your Cessna 170 will look as factory-fresh in 5 years as it does today! Metal greatly increases over-all airplane strength, adds extra economy, utility, resale value, affords best protection against weather, lowers maintenance. Cessna 170 is the only all-metal airplane in the low-price field, sells for only $8295! For more information, see your nearest Cessna dealer (listed in the yellow pages of your telephone book) or write CESSNA AIRCRAFT CO., Dept. FM-11, WICHITA, KAN.

Cessna 170 Extras—All Standard!

. . . Undisputed Proof That Cessna 170 Is Your Best Buy In The Low-Price Field!



4▶ 145 H. P. CONTINENTAL ENGINE
5▶ "PARA-LIFT" FLAPS
6▶ 120-LB. LUGGAGE CAPACITY
7▶ 42-GALLON FUEL CAPACITY
8▶ SOFT, FOAM-RUBBER SEATS
9▶ 6-OUTLET HEATING AND VENTILATING SYSTEM
10▶ METAL PROPELLER
11▶ *FULL* 4-PLACE COMFORT
12▶ SHOCK-MOUNTED INSTRUMENT PANEL
13▶ DIRECT-READING FUEL GAUGES
14▶ CARGO TIE-DOWN RINGS
15▶ STALL WARNING INDICATOR

GREAT CESSNAS 170 180 195 310 THE COMPLETE AIR FLEET FOR EVERY BUSINESS NEED

TWIN-JET LIGHTPLANE

(Continued from page 25)

ft., height 8 ft., wing area 193 sq. ft. and wing loading 27 lbs. per sq. ft.

Pressurization provides a cabin altitude of 9,842 ft. when the M-S 760 is flying at an altitude of 19,685 ft. It is a mid-wing design with electrically-controlled aerodynamic or dive brakes.

First flight of the M-S 760 was made on July 29, 1954, at Melun-Villaroche, France, by Jean Cliquet, who has been with Morane-Saulnier since 1937. The firm developed the Model 760 from its earlier Model 755, which first flew in January, 1953. That model was a side-by-side two-seater which logged 100 hours of tests under tropical conditions in India.★★★

THE "FLYING PLANK"

(Continued from page 28)

four partners have about $250 in materials and some 650 man-hours of labor invested in the prototype. They're convinced they are on the right track of getting acceptable performance, based on war-surplus 2-place sailplanes, at a minimum cost and simultaneously achieving a rig that can be lifted easily onto a cheap trailer without disassembly.

"Aerodynamically the aircraft is dirty," Jock Powell asserted, "and many improvements can be made, but as it stands I believe that any glider pilot can climb into this machine and fly it without experiencing the slightest trouble. Because of my light weight I was able to make the machine stall at 30 miles per hour indicated. We can lighten and further simplify the structure and will do so on our second ship."—G. E. H.

Airmen's Calendar

Oct. 9-16—6th Annual All Texas Air Tour.

Oct. 13-15—Airport Management Conference, jointly sponsored by University of Oklahoma and AAAE, Norman, Okla.

Oct. 17-19—International Air Tour of Mexico, from Brownsville.

Oct. 19-20—7th Annual N. Y. State Airport Development and Operations Conference, Syracuse.

Oct. 23—Airmail Pioneers Division Reunion, VFW Club, Elmhurst, Ill.

Oct. 27-29—National Business Aircraft Association Convention, Dallas.

Nov. 8-10—NATA Annual Meeting, Biltmore Hotel, Miami Beach, Florida.

Nov. 9-12—Air Line Pilots Association Convention, Sheraton Hotel, Chicago.

Nov. 11-12—Airmail Pioneers Division Reunion, Hollywood Roosevelt Hotel, Los Angeles.

Nov. 14-17—ADMA 12th Annual Meeting, Mayflower Hotel, Washington, D. C.

CESSNA HELICOPTER

(Continued from page 30)

from mountainous terrain. Performance figures are being withheld pending completion of CAA certification.

Size of the CH-1 is illustrated by its gross weight of 3,000 lbs. Its main rotor has a 35-ft. diameter.

Due to the nose-installation of the engine, the CH-1 cabin has the appearance and roominess of a 5-place fixed-wing airplane. The drive shaft for the main rotor is located between the pilot and co-pilot on the craft's center of gravity, and there is a large area for payload just behind the two front seats and close to the center of gravity.

Development of the CH-1 included wind tunnel tests at the University of Wichita for perfection of fuselage aerodynamic efficiency. Drag reduction has been a definite factor in the CH-1 development, indicating Cessna's emphasis on improving upon the ordinary cruising speed capabilities of helicopters.

Very exhaustive ground and flight tests have been conducted with ingenious test rigs at Cessna's Prospect plant near Wichita. These tests covered hundreds of operation hours of rotor and transmission systems.

Jack Leonard is manager of the Cessna helicopter division. Charles Seibel is chief engineer. This division was organized early in 1952 when Cessna purchased the assets of a development company organized earlier by Seibel. Much of his helicopter design work involves original engineering which has been covered by patents.

Cessna expects to become a top contender in the helicopter industry and new developments from its helicopter division are expected during the year to come. ★ ★ ★

TULSA RESORT

(Continued from page 29)

cabana suites available. The hotel also has fuel for aircraft, Avis Rent-A-Car service, a western apparel shop, a barber and beauty shop. Accommodations include $7 rooms, $20 and $50 cabanas, honeymoon suites and a penthouse at $50. Advance reservations are suggested. ★ ★ ★

NBAA CONVENTION

(Continued from page 32)

Monsanto Chemical, St. Louis, and Delos Rentzel, the new head of Slick Airways, San Antonio. Jean DuBuque is executive director of NBAA in charge of their Washington, D. C., headquarters. ★ ★ ★

DISPLAY OF NEW BUSINESS PLANES was a feature of recent open house activities at the new Lear plant at the Santa Monica airport in California. Left to right are a Beech Twin Bonanza, Beech Bonanza, Riley Twin, Cessna 170, Cessna 310, Cessna 195, Cessna 180, Piper Super Cruiser and Piper Tri-Pacer. All were equipped with Lear radio, it was reported.

BRITISH AIR SHOW

(Continued from page 27)

at Farnborough was in two very high-performance standard types — the Hawker Hunter Mark 2, powered by a Sapphire, and its Navy equivalent, the Vickers Supermarine 525, which is powered by two Avons producing about 20,000 lbs. of total thrust. Impressive performances were also turned in by the Vickers Swift powered by an Avon; the twin-Avon-powered de Havilland 110 all-weather fighter, and the delta-winged Gloster Javelin all-weather fighter, powered by two Sapphires.

Top British fighter of the moment is the brand-new English Electric P-1, which is supersonic in level flight and is powered by two Sapphires installed one atop the other inside the fuselage with an open-nose air intake somewhat like that of new American supersonic fighters. It was not displayed.

In bombers, flights were made by the huge new delta-winged Avro Vulcan atomic bomber, powered by 4 Olympus jets and said to be the equivalent of America's Boeing B-47, and the Vickers Valiant medium bomber, powered by 4 Avons. The heavy Handley Page Victor, powered by 4 Sapphires, made a single touch-and-go appearance. Most bomber flying was performed by English Electric Canberras.

New transports on display ranged downward from the brand-new 500-mph. Comet 3 and Comet 2 to the new 400-mph. Bristol Britannia and smaller 340-mph. Vickers Viscount. The Britannia is the new long-range turboprop airliner ordered by BOAC. Comet 1's are still grounded. Announcement is expected soon, officially determining the major cause of Comet 1 accidents. It is understood that a Comet fuselage undergoing tests in a pressure water tank has led investigators to the cause, believed to be related to pressurization, and that it has been corrected. "Pioneering" is the general explanation of the trouble — it is certainly true that the Comet has undertaken great strides in air transport pioneering, for passenger service above 40,000 ft. involves design and operating complexities never before

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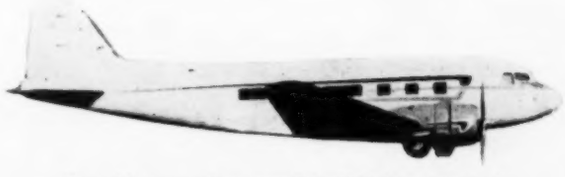

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One company estimated that executive time lost in just traveling from factory to airport reached *$1,000 a day.* A Bell helicopter not only can save that important time but also doubles as an all-around aerial messenger, hustling high priority mail and material from facility to facility.

Port of New York Authority cut travel time for executive and engineering personnel from two hours on the ground to 20 minutes with a 3-place Bell helicopter; a New Jersey utility company developed a helicopter shuttle run between widely scattered installations; and an East Coast executive uses a helicopter exclusively for business trips in a radius of 100 miles of his headquarters.

Its low initial investment, simplified maintenance and economical operating cost—*plus built-in safety and efficiency*—makes the Bell helicopter a practical form of transportation for the busy executive.

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faced by the aircraft industry. Boeing Airplane Company representatives from America are known to be working closely with de Havilland and are undoubtedly making good use of Comet experience in developing the new Boeing 707 jet transport.

Turboprop pioneering is being accomplished on a considerable scale by the British and was represented by many display aircraft, including carrier-based attack planes and anti-submarine warfare types as well as the much-discussed civil Viscount and Britannia transports. While American aircraftsmen have avoided or ignored turboprop development on the grand scale, the British have centered heavy efforts on it and the Farnborough intimation was that the Viscount is only the beginning. For example, the Rolls-Royce Dart, upon which most British turboprop progress has been founded, is now rated at 1,550 shaft horsepower plus 400 lbs. of jet thrust and even more power is expected from its continuing development. Rolls-Royce has a large turboprop engine in development, designated RB-109, which is intended for heavier transports. No details were given but the impression was that the RB-109 will be as successful in the realm of 5,000 hp. as the Dart has been at the lower end of the scale. It holds special interest for its possibilities in the transport helicopter field now developing, and its application to 40-passenger twin-engine helicopters is expected to be a "natural." These helicopters would compete in performance with such short-haul air transports as the Convair 340.

Workplanes such as the de Havilland Beaver and the Scottish Aviation Pioneer were demonstrated. Both are short-field, high-payload, single-engine aircraft capable of operating from rough, unprepared areas. Helicopters on display included the twin-engine Bristol small transport powered by two 870-hp. Alvis Leonides piston engines. About 100 of this, the Model 173, have been ordered for the RAF and Navy. Lighter single-engine copters on display included the new Saunders Roe 2-place Skeeter, powered by a 190-hp. Blackburn Bombardier engine.

Trainers in the show included the de Havilland 115 two-seater with side-by-side cockpit and powered by a Goblin engine which is backed by 10 years of operational integrity. This advanced jet trainer is the standard for the RAF and has been ordered by 13 air forces throughout the world. A new basic jet trainer, the Hunting Percival Jet Provost, was also demon-

strated. It is powered by an Armstrong Siddeley Viper developing 1,650 lbs. of thrust.

Engines attracting much attention were many. A striking demonstration in low-level flight was made with a Canberra powered by two Bristol Olympus twin-spool jets. This engine, rated at close to 10,000 lbs. of thrust, has two axial compressors in series for very high compression ratios. In the flight demonstration, the throttles were opened and closed repeatedly and in quick succession to show how the compressors automatically adjust themselves. De Havilland's Avon series of large jet engines includes power ratings from 6,500 lbs. of thrust to over 10,000 lbs. of thrust. The Armstrong Siddeley Sapphire, an axial-flow jet with relatively small frontal area, attracted much attention and is now developing close to 10,000 lbs. of thrust. On a smaller scale, a new Rolls-Royce axial-flow jet was news at the show. It is the Soar, which weighs a mere 280 lbs. or less but delivers more than 1,800 lbs. of thrust. In a flight demonstration, a Meteor was flown on Soar engines mounted in its wingtips. The Soar's diameter is only about 15 inches.

Not seen at the show, a new Rolls-Royce vertical take-off research vehicle made headlines. It is not an airplane in configuration but is a 4-legged mount for two Nene jets and has been flown by sheer thrust alone, having no lifting surfaces. The engines are mounted horizontally and the pilot is seated conventionally. It has made 10-minute flights. It is called the "Flying Bedstead" because of its appearance. —T.A.

JUST AMONG OURSELVES

(Continued from page 18)

Association reduced from $3 per year per $1,000 coverage to $2.50 for pilots and crews flying scheduled passenger service and pilots employed by individuals or corporations for passenger service where maintenance and pilot qualifications are comparable to those of the scheduled airlines. The reduction applies to all plans of insurance.

In addition, the Equitable Society announced that, upon request, it will consider reduction of any existing premium to the new $2.50 basis, which includes pilots flying for themselves.

Little by little, aviation safety progress chips away at the old bugaboo of excessive insurance rates. The traditional rate-up of pilots is gradually dropping to the point where it won't be noticed and is no longer a factor in the "fear" psychology that still keeps so many of our citizens on the ground. ★ ★ ★

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15 to 20 mph faster

says Carl Westlund, Pres.
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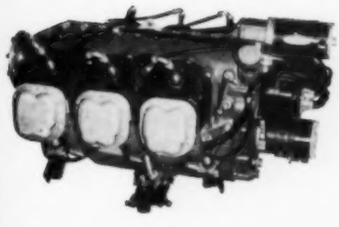

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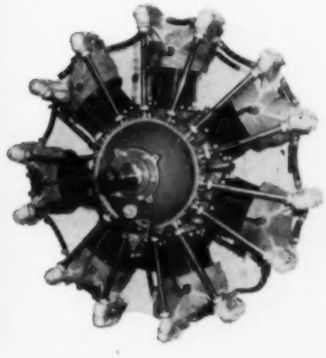

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EXECUTIVE HERON

(Continued from page 24)

However, we were on an assigned cruising level which was our optimum cruising altitude and wanted to maintain it as long as possible for best speed and fuel consumption. These were running 175 mph. true air speed and 167 mph. surface speed for a wind factor of minus 8 mph., and our fuel consumption was averaging about 50 gals. per hr. Our flight plan had estimated 5 hrs. and 20 minutes for the leg and this was working out satisfactorily in view of our 405-gal. fuel supply.

What appeared to be dawn turned out to be the Northern Lights off to our right. They were a faint and colorless illumination which became visible at intervals with breaks in the clouds. We were between layers. The lights were blanking out communications in front of us but we were still able to communicate to our rear and the weather ship. Another fix on the console 4 hrs. and 28 mins. from take-off placed us squarely on our chart line and we knew we had it made, with only about 50 minutes remaining before reaching Keflavik. We began our letdown about 15 minutes out and had the instrument runway at Keflavik right on the nose as we broke out beneath the 4,000-ft. ceiling. Our landing was in daylight with good visibility and almost no wind. We had flown 5 hrs. 20 mins. from Prestwick to average just under 170 mph., using 280 U. S. gals. of fuel.

After breakfast and a couple of hours of rest in the Keflavik air terminal, we took the Heron around the coast to Reykjavik where Orn O. Johnson, general manager, and Johannes R. Snorrason, chief pilot, of Flugfelag Islands (Iceland Airways), awaited a flight demonstration which had been scheduled months earlier. This ability of Ford's organization to demonstrate aircraft as well as to ferry them is one of the many reasons why his firm, Fleetway, has become the world's top aircraft delivery service.

Our demonstration over, we went through weather briefing, got a clearance after refueling, and took off shortly after lunch for our next stop — Bluie West 1 in Greenland, some 675 nautical miles across water and a flight of about 4 hrs. 30 mins. We were all squared away on course and between layers at 8,000 ft. when a generator failed. This was not good, for in the rush of delivering the airplane back in England, the factory had installed only two generators instead of four as is customary, placing the other two aboard for later installation in New York. With one not working, the other became overloaded by heavy radio usage and our only choice, in the face of instrument flying for hours at a stretch, was to turn around and return to Iceland for maintenance. We now had confirmed what we had known all along — that a 4-engine airplane with only two generators is only a twin for all practical purposes, and for the same reason a twin with only one generator is nothing more than a single-engine craft.

We didn't mind loss of the 300 nautical miles involved in the turnaround but during the two days it took to restore the generator, Hurricane Edna moved north from New England to foul up weather and winds in front of us and we were now waiting for it to move off our course. So were practically all of the westbound airliners crossing the Atlantic at the time. They came into Keflavik by the droves and we had as many as 1,000 airline passengers in the terminal and 16 DC-6's and Constellations on the ramp at a time, their crews awaiting winds and weather.

Our clearance came on Tuesday, September 14, and we lost no time getting out at 1:35 p. m. local time. Our track was 244 degrees, but with the correction for magnetic variation, our magnetic heading was 280 degrees. A couple of radio fixes had us right on course an hour out and 2 hrs. 6 mins. from take-off we had a ship's

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radar fix showing us to be about 30 miles north of Weather Ship 4YA about halfway between Iceland and Greenland. This was good news because the layers we were between now were closing together and our 8,000-ft. cruising altitude was to be in cloud with icing for quite a distance before we reached Greenland. It was clear ice at first, then rime. By the time we had 2 inches of ice our indicated speed had dropped off about 20 knots. Ford let down to 3,500 ft. an hour later so we could lose the ice before having to climb over the Greenland Ice Cap, for which a 11,000-ft. altitude would be necessary. We were still in cloud but eventually got rid of the ice for the temperature was 5 degrees above freezing at this low level and some rain showers helped.

Had we been unable to top the Greenland Ice Cap, with 9,000-ft. peaks on our route, we would have flown around Prince Christian and the tip to enter the fjord for BW-1 from the south. But the overcast became broken as we sighted Greenland and we climbed to 11,000 with no trouble at all. Low scattered clouds covered most of the Ice Cap and we were hoping BW-1 on the other side would be open, not having any direct and late reports from it. Our alternate destination was Bluie West 8, some 400 nautical miles north in the direction of Thule. We held our heading across the granite-studded glaciers — the most beautiful sight from the air we have ever enjoyed — and were comfortable in the knowledge that we had four motors even though they were small ones. These little de Havilland engines never purred more sweetly than they did over all that ice, some of which we later learned was 8,000 ft. thick.

As snow and ice disappeared below us, the big fjord containing BW-1 came into view and we let down past a dead glacier over green water and icebergs to land on its broad concrete runway 4 hrs. and 25 mins. from take-off in Iceland. A weather briefing promised us clear sailing on our next water crossing and a refueling had us in the air on take-off just before sunset, enjoying the autumn colors of the trees along the fjord as we climbed out for Goose Bay, Labrador, some 705 nautical miles across the Davis Straits. Rather than cut straight across, we took up a magnetic heading of 265 degrees for a track of 227 degrees to cross over Weather Ship 4YB for a radar fix about 2 hrs. 30 mins. from take-off, changing our magnetic heading then to 295 degrees for a track of 259 degrees, which took us to a Labrador landfall in another hour and 25 mins. We had been on top but the cloud deck ended at the coast and we followed the bay into Goose for a landing there 4 hrs. and 45 mins. from take-off.

We had made our crossing but were still a long way from New York. So even though we were now 12 hrs. out of Iceland, we decided to keep going and were off from Goose 2 hrs. after landing, picking up Seven Islands and the St. Lawrence Gulf and landing at Montreal, making the 720-nautical mile hop in 4 hrs. 25 mins. and arriving at midnight local time.

Our reason for stopping at Montreal instead of taking a more direct route to New York was to discharge a passenger. She was Mrs. Frank Lloyd, whose husband is de Havilland's manager of sales for the Comet jet airliner. Mrs. Lloyd had enjoyed the long ride, despite the sharp contrast in speed with that of the more familiar 500-mph. Comet on which she had traveled. She was en route to Vancouver, British Columbia, to visit her two sons.

We took off from Montreal in clear air and landed at New York's Idlewild Airport 300 nautical miles away 2 hrs. later just at sunrise and in lowering clouds and visibility.

Our trip in the Heron had covered

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a total of 3,760 nautical miles, including the 300 lost on the turn-back to Iceland, and we had flown a total of 25 hrs. 45 mins., for an average ground speed of 146 knots, or 169 mph. Our average true air speed had been 173 mph., and our average wind component had been minus 4 mph. The best tailwind had been 20 mph. and the worst headwind had been 25 mph. Coldest air temperature was 5 degrees below freezing over Greenland and warmest air temperature had been 10 degrees above freezing near New York.

The Heron normally cruises at 183 mph. true air speed at 65 per cent power and with a fuel consumption of 50 gals. per hr. This is at gross weight of 13,000 lbs. with proper loading. Our trip was made, however, with sufficient weight to keep us at or above gross weight at all times, for we were carrying a large load of spare parts and crated aircraft cargo. It had been loaded too far rearward for the best trim and we were usually indicating 150 instead of 160 as is customary at 8,000 ft. when properly trimmed.

We also had 250 lbs. of extra radio equipment aboard. This was an ingenious portable radio "package" used by Fleetway in the airplanes it delivers. It contains a 100-watt Collins ART-13 transmitter with CW key for low frequency communications and a Bendix combination for communications and manual DF receiver. This is installed in a portable crate which also serves as a work table for the navigator. The Heron's factory-equipped radio included a 20-channel Marconi VHF transceiver and a Marconi ADF.

Such a trip brings out the economies possible with the Heron. Four-engine safety and dependability at only 50 gals. per hr. introduces something new to business flying. The 250-hp. engines are approved for more than 800 hrs. between overhauls and are respected as representing the ultimate in British aircraft engine simplicity and maintenance economy.

The Heron we brought over is G-ANOL under British registry and will be de Havilland's demonstrator in the States, operated by de Havilland Representative Ian Fossett from his base at Linden, New Jersey. Its first demonstrations outside of the New York area will be in Dallas Oct. 27-29 during the National Business Aircraft Association's annual convention.

Four-engine advantages offer a high degree of safety and dependability of operation over water or difficult terrain for long periods. Herons are in airline use and the effects of power loss in one engine are so minor that feather-

ing propellers are considered non-essential on them.

At gross weight the Heron will hold an altitude of more than 11,000 ft. with one engine inoperative and its propeller windmilling. The factory's performance charts show it will climb at 50 ft. per min. at 11,465 ft. in this condition but the chart adheres to conservative "net" data and it is possible to demonstrate considerable more performance than the chart shows. This also applies to other performance figures such as take-off and landing.

The U. S. price for an executive Heron is $186,500, including de-icing boots and propeller anti-icing as standard equipment, as well as four generators and 500-U. S.-gal. fuel capacity. Standard cabin arrangement will be 8 seats for passengers, arranged with folding tables between pairs. A wide range of cabin variations is available.

Queen Uses Heron

Some 60-odd de Havilland Herons are in worldwide operation, most of them as 14-17 seat feeder airliners. Among Heron users is Queen Elizabeth. A Heron is in the "queen's flight" of aircraft and the Duke of Edinburgh, who is a pilot, will fly the new Heron on many of his official journeys. The Heron was developed from the twin-engine Dove, of which 450 are in operation.

We were greatly impressed on this trip by the valuable service to aviation which is being rendered by Jack Ford's Fleetway ferrying organization. His crews have delivered airplanes for practically all American aircraft manufacturers having export markets in addition to practically all of the American deliveries of de Havilland Doves across the Atlantic. They have an enviable record of safety and dependability. Key to their success has been thorough planning and training. Moreover, they maintain constant liaison with far-flung airports and are familiar with global air routes and regulations. This same valuable service is available to operators of executive aircraft who may desire to fly their multi-engine planes abroad. Ford will serve such operators with an economical "package" arrangement in which his crew goes along with the executive's crew and takes care of all details at international airports as well as radio operation and navigation. They have made several such flights abroad already, the latest with a businessman and his DC-3 on a flight to Africa for a hunting trip. Fleetway's headquarters is at Lockheed Air Terminal, Burbank, California. ★ ★ ★

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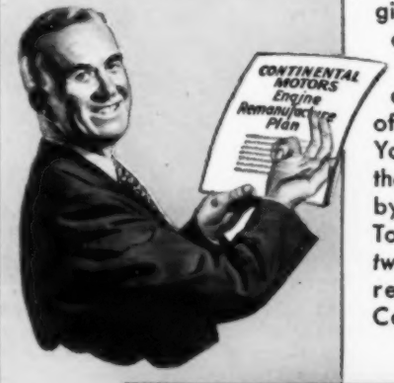

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R-138 Receiver with D-10A Dynamotor
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C-22A Control Unit, M-18 Mounting

A-138 Antenna

AVIATION BEAUTY IN TULSA is well represented by Aline Ridenour, pictured here as posed on the nose of a beautiful Aero Commander. Aline recently soloed an Aeronca Champion, with Elmo Mauer as instructor at Tulsa North Airport. A model, she is an active WNAA member.

Questions and Answers for Airport Operators

These Changing Times

QUESTION: This is something that has happened to me. I wonder if you can give me the answer. I live in a town of about 150,000 and we have a very creditable municipal airport, good airline service and two large operators plus a small one. I paid for my flight training on this field over twenty years ago before there was ever a runway here. Since then I've usually owned some kind of an airplane. Right now it's a four-place Cessna.

I hangar it with the same operator who taught me how to fly and I use it in my business. In my family there is an eighteen-year old son who will take over the family business. He can do that better if he is a pilot. With that in mind I asked my operator if he had any one who could give the boy instruction. He said he had a man on his staff who had an instructor's rating but that he wasn't doing any flight training any more as such and that he could not set about giving any because his man was too busy doing things that brought in more money and besides he had no aircraft he would care to use for flight training in the primary stage.

I went to both the other operators

FIRST MEETING OF THE NATIONAL AVIATION MAINTENANCE COUNCIL was held September 10 in Washington under auspices of the National Aviation Trades Association. Standing, left to right, are J. Friderichsen, California; Sgt. E. E. Rodoski, MATS; Willard Hagelin, California; J. P. Schneck, Illinois; Tom Dickson, Jr., New Jersey; A. Biederman, California; W. R. Scott, Montana; Bob Northington, North Carolina, and John Griffin, Massachusetts. Seated, left to right, are Col. V. F. Melendez, MATS; George Weitz, CAA; A. S. Koch, CAA; William Lotzer, NATA; S. A. Kemp, CAA; Col. Robert Lowe, USA, and Col. George L. Lovett, USA.

—(NATA Photo.)

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on the field and got more or less the same answer. One of these had some students, but he felt that primary training was more or less a nuisance and his students had difficulties getting their flying time sandwiched into his other activities. As a result I began to take a good look at the airports and their operators at the various points I visited in the next few months. There has been a great change and I don't like it. In the hangars on the big municipal airports you find only expensive executive aircraft, single and twin-engine. It speaks well for the industry. Flying as an integral part of business has made tremendous strides in the last few years, and to my suddenly-opened eyes, the last twelve months of progress have been noteworthy. But the thing that worries me is that everywhere I went it appeared that flight training as we knew it before the second war had silently slipped from the picture. Certainly I found places where flight training could be secured but there was no attempt at selling it.

Finally I visited some of the smaller private fields in my own area and found one where the operator was glad to get another student and my boy

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will get his private in a couple of months.

But what is happening to that important part of the aviation business that was the life blood of the operators when I was starting out?

ANSWER: Your Question and Answer man has been watching the changing trend you talk about. He remembers, too, the way it used to be. Flight instruction can still be obtained. There is no question about that. But every operator doesn't sell it. The reasons are various.

We grew up in a period when every operator had to grab at every dollar he could turn. Executive flying wasn't even a term used in the business. Agricultural application was confined to limited fields of operations and a few crops. Do you remember that most of the aircraft stored in any operator's hangar in those days were two-place fabric jobs mostly flown for fun or training? Your operator could rent a hangar for next to nothing and had a hard time paying the rent. He wasn't just a specialist in sales and service to five and six-figure beauties. To make eating money he had to do everything that promised him a buck. There were some big schools in those days and most of them are gone, or have given up the flight training part of their activities.

Today heavy investments and high rentals do not encourage the diversified type of operations we remember. Free training under WTS, CPT and GI programs left many of them with the feeling that flight training couldn't be sold. Some metropolitan airports prohibit flight training and many others discourage it. For the most part the business on the big airports has gone where the money is. And on many of the smaller ones the same thing has happened. You'll find operators there who have thrown the weight of their operations to agricultural or industrial application and have no men, time or aircraft for training.

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But you can find flight training as you've proved on many private fields. And that doesn't mean you can't find it on many municipal airports. That's especially true where management has made a serious effort to see that all the public needs are served on an airport.

Guard Units Taking Over Hangars

QUESTION: We have a situation in my town that has a number of us worried. An Air National Guard unit, according to rumor, is negotiating to base on our municipal airport. We have no objection to that at all but we hear that they want one of the hangars. If they get one of the hangars a lot of us are going to be out in the cold. Our city fathers have been sold on the fact that they will have some full-time personnel stationed here and that means a payroll. They also feel that in time this may mean that they will get some improvements made on the field, perhaps a runway extension.

What can we do to protect civil aviation here?

ANSWER: Your problem is not unique and it certainly is not hopeless. As we recall your airport, there is one hangar built by the municipality many years ago. It is under lease to an operator for a long term which protects him from displacement. Likewise that hangar is probably not suitable for the National Guard. The remaining hangars were built by the Federal government during the second World War when the field was under lease. We may be wrong but we believe these hangars were conveyed to the city by the Federal government after the war under the terms of the Surplus Property Act of 1944 as amended. This conveyance, we believe, is a quit-claim deed executed subsequent to the passage of Public Law 289 and follows the general form of such transfer documents executed after the passage of that law.

You will find, we are sure, that this instrument has been recorded in the deed records of your county. Look it up and read it, paying particular attention to the reservations and restrictions imposed on the uses of the property transferred. Among other things it is provided that the grantee, the city, is required to maintain the property for the use and benefit of the public. Civil aviation is the public use to which this property is now put and was the use contemplated by the transfer.

Also in that instrument you will find that there is a reservation to the effect that "no property transferred by this instrument shall be used, leased, sold, salvaged or disposed of by the party of the second part for other than airport purposes without the written consent of the Civil Aeronautics Administrator, which shall be granted only if said Administrator determines that the property can be used, leased, sold, salvaged or disposed of for other than airport purposes without materially and adversely affecting the development, improvement, operation or maintenance of the airport at which such property is located."

We cannot here go into the legal aspects of this matter, but as laymen we are sure that the removal of the hangar from public or civil use requires the approval of the Administrator of Civil Aeronautics. Your city officials should know this. If they do not, you may call it to their attention.

While it is true the Federal government retains the right to make exclusive or non-exclusive use of the property transferred during a national emergency, we think you will find that the National Guard, unless mustered into the Federal service, is a state organization. The Corps of Engineers may be brought into the position of negotiating a lease for the Guard, but it is still a state problem.

So long as the hangar is needed for civil aviation, it is doubtful that any determinations can be made which could show that it is excess to the needs of the airport for public airport purposes or that its removal from civil use would protect or advance the interests of the United States in civil aviation. In short, rely on existing protection in Public Laws 289 and 311

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which places the responsibility solely on the Administrator of Civil Aeronautics for administering compliance with the terms and conditions of disposal instruments such as yours. If your city people try to ignore the responsibilities get in touch with the CAA through the district airport engineer for your district.

There is another phase to the problem which you may wish to bring up to city officials. While the unit of the Guard seeking to locate at your field may now be using conventional aircraft, these Guard outfits are rapidly being converted to jets. If the approaches to your runways are being built up with homes and businesses as are many airport approaches, you may have another problem — noise. We do not imply that jets are hazardous, but we do think they can be a very disturbing element over homes, schools and churches located close to the airports they use and many towns have had this experience.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39 United States Code, Section 233)

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AIR REVIEW PUBLISHING CORP.

FRED N. STONES, JR., Business Manager

Sworn to and subscribed before me this 29th day of September, 1954.

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